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DIESEL RAILWAY TRACTION SUPPLEMENT

The April issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1s.

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from 9 in. × 12 in. to 8½ in. × 11¼ in. The type area of the page remains the same, namely, 7 in. × 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Easter Holiday Travel

THE Ministry of War Transport made known during the week-end the travel arrangements which are to be effective during the Easter holiday. Although this year the holiday for war workers has been extended, by the inclusion of the Saturday, the Ministry has decided that because of the pressure of war traffic, restriction must be placed on travel, generally similar to that of a year ago. Between April 22 and April 27 inclusive, there will be no more long-distance passenger trains on any weekday than the maximum number run on any ordinary weekday, including Saturdays, in March, 1942. Similarly, the number of long-distance trains run on Easter Sunday will be limited to the number run on an ordinary Sunday in March last year. Trains which normally run in parts may continue to do so, but each part will count as a separate train. Local train services on Easter Monday will not exceed the number of trains run on an ordinary Monday in March, 1942. During the restricted period the comparatively few remaining restaurant cars will be withdrawn, and free or assisted journeys by civilians under various assisted travel schemes will be discontinued. The American Forces now in Great Britain are co-operating in reducing service travel to the minimum at Easter, and leave for all sections of the Forces has been adjusted to avoid travel on Easter Sunday and on the next Monday and Tuesday.

Holiday Policy Awaited

All too frequently since the need first arose to discourage passenger travel on the railways, attention has been drawn in our columns to the desirability of clear ruling by the Government in relation to its holiday travel policy. On some occasions the attitudes of various Ministries have appeared to be in conflict, and the result has been that the individual traveller has been left to make up his own mind as to whether he is justified or not in travelling. *The Manchester Guardian* commented recently that none of the Ministries concerned seemed anxious to give a clear lead about holidays at home. Perhaps too many were involved—War Transport, Health, Labour, and to some extent Food and the Home Office. So far, the Ministry of War Transport has announced that there will be no extra trains, and Mr. Bevin has urged staggered holidays. The Ministry of Health sent out circulars in January to remind local authorities to put plans in hand similar to those for last year, but some local authorities are still awaiting a firm statement from the Ministry of War Transport. Some of these towns, *The Manchester Guardian* points out, made elaborate plans last year for holidays at home "and then saw excursion trains taking what should have been their customers to the seaside." An official of the Ministry of War Transport is quoted by *The Manchester Guardian* as having said, on March 30, that the holiday trains last year were not really excursion trains, and that many who lived in the industrial North had been glad of them.

Public Recognition of the C.N.R. War Effort

There appears to be unanimity in the Canadian press as to the excellent operating performance of the Canadian National Railways during 1942. One journal, for example, pays the following tribute: "It can truly be said that no industry has served this country better than has the Canadian National, and to its management and its 101,000 employees Canada owes a lasting debt of gratitude for the performance of vital, herculean tasks well and loyally done." Another describes it as "one of the brightest facets of Canada's 1942 war effort," and continues by saying that "the system has broken all previous records in the movement of freight and passengers and, in addition, has manufactured guns, gun carriages, and several secret devices; minesweepers and corvettes are being built on its slipways, and it is also building cargo vessels . . . it is evident that great strides have been made in engineering advancement and in overall efficiency of the personnel." Another extract from the Canadian press reads: "The Canadian National stands today, not only a great publicly-owned transportation asset, but as one of our great instruments in the waging of war—an instrument without which we could not have produced, certainly would not have distributed, the armaments and munitions with

EASTER PUBLISHING ARRANGEMENTS

To conserve paper and reduce postage of copies in Easter week, the issues of THE RAILWAY GAZETTE *dated April 16 and 23 will be combined and published on April 16. There will thus be a fortnight's interval between the combined April 16 and 23 issue and the next regular weekly issue, due to be published on Friday, April 30*

which we have equipped our own armies and the armies of our Allies." And so on, in many other papers, the remarkable efforts of the C.N.R. are praised from every point of view.

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Recognition of Transport Officials

Whatever views may be held as to the expediency or commercial justice of the Government arrangements for the acquisition of the shares of Short Brothers (Rochester & Bedford) Limited, there can be no question about the strength of the Government nominees to the new board of directors, and it is noteworthy that most of them are well known transport executives. As has been previously announced, the Ministry of Aircraft Production invited Sir Frederick Heaton to become Chairman, and the further Government nominations to the board now include Lord Ashfield (Chairman of the London Passenger Transport Board), and three of the executives of the Tilling Group of transport companies. These are Mr. Percival G. Stone Clarke, a Director of many railway-associated provincial bus companies; Mr. William Bramham, Director & General Manager of the Eastern Coach Works Limited; and Mr. A. J. Romer, General Manager of the manufacturing section of the Bristol Tramways & Carriage Co. Ltd. Incidentally, this is the first occasion which we can recall in which Lord Ashfield and Sir Frederick Heaton have appeared on the same board of directors. In view of the uncertainty of the post-war Government disposal of the Short Brothers shares now acquired, it is noteworthy that Sir Frederick Heaton and his bus associates have substantial interests in bus body building, which is one of the important peacetime activities of Short Brothers.

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Egyptian Railway Coal

Figures have recently been issued by the Egyptian Government regarding the import of coal into Egypt for the years 1938-1941 inclusive, as follow:—

1938	...	...	1,547,912 tons	1940	...	...	450,059 tons
1939	...	...	1,576,938 tons	1941	...	...	428,755 tons

In view of the importance of the Egyptian State Railways as consumers of coal, the following supplementary information is of considerable interest. The normal pre-war consumption of coal by the Egyptian State Railways was approximately half a million tons per annum (about 40,000 tons monthly) with a reserve of two months' supply (about 80,000 tons). For the two years before war, the Egyptian State Railways administration decided on creating a strong stock position and set half a million tons as its objective. Thus, imports in the two years 1938 and 1939 are in excess of the normal. The expectation of hostilities proved correct, and the fact that the objective was almost realised by the end of 1939, proved to be a most valuable asset, since the railway administration was able to use these stocks when imports were not available, and also obtained coal at a pre-war price of approximately 30s. a ton c.i.f. against today's price of £6/£7 a ton c.i.f. From 1940, when Italy entered the war and closed the Mediterranean, all coal had to make a journey that took two months longer, and the Egyptian State Railways were without imports for that period. Coupled with increased military operations, the carefully-accumulated stock was reduced by more than a quarter of a million tons. In order to reduce coal consumption, it was decided in 1941 to convert about 300 locomotives to oil burning. This programme is now well advanced, and has produced a reduction of about one-third of the coal consumption for 1942 with further expected reduction for 1943.

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False Economy

In these days of shortage of materials, there is a tendency to push economies to such extremes that the economy in one specified material may lead to extravagance in the use of another. Such a situation has just arisen on the railways of the United States, due to an order by the War Production Board prohibiting any further use of steel for the tie-irons and other anti-splitting devices used in the conservation of sleepers. During the past 25 years the railways have done a great deal of pioneering work in developing the use of hardwoods such as red oak, birch, beech, and maple, to prolong sleeper life and thus reduce the demand on the forests. Such timber, however, tends to split during seasoning and treatment to such an extent as to render it unfit for use, and it has been to check such tendencies that the railways have used large numbers of tie-irons, bent to "S," "C," or similar shapes, which are driven across the grain at the sleeper ends. An expenditure of four cents for tie-irons at both ends of a sleeper may thus save some $2 on the investment in the sleeper itself. The matter is of greatly increased importance at the moment because of the acute sleeper shortage brought about by war conditions, and because of the waste of labour involved in the handling, up to the seasoning or treating stage, of sleepers which have ultimately to be rejected because splits have developed. The "penny wise, pound foolish" aspect of the W.P.B. order is seen in the fact that only 3,500 tons of steel are needed to make the 60,000,000 tie-irons used each year, which, used as an insurance against splitting risks, may actually save up to a million sleepers from total loss.

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Travel Limitations in Coastal Areas

With the beginning of April we have reached once more the "invasion season," and there are reports from many Continental countries of German-inspired restrictions on travel in coastal zones. Such have been reported from Italy, France, Belgium, Holland, and Norway. In England, new regulations on access to coastal areas came into force on April 1, but with an important difference from those of previous years. In announcing the position, in the House of Commons, Mr. Herbert Morrison said that the question had now to be considered in relation not solely to the risk of invasion, but also to the use of this country as a base for offensive operations against the enemy. Accordingly, in addition to the retention of the ban on the entry of pleasure visitors to the Isle of Wight and to the coastal area from the Thames to Hastings, a different system of restriction has come into force for the whole of the East and South coasts from the Humber to Penzance, covering a 10-mile belt; the coastal strip from Milford Haven along South Wales and round the Severn Estuary to Portishead; and (in Scotland) areas around the estuaries of the Forth, Tay, and Clyde. These have been declared regulated areas, within which access to particular places may be restricted or banned from time to time by the Military Authorities, without prior notice, and no general public announcement can be made. Therefore, in addition to the list of stations to which pleasure access is banned, which is exhibited throughout the railway systems, there are now many places to which the purchase of a ticket gives no guarantee that access will always be granted. It has been stated officially that there will be no liability for compensation from a hotel keeper if information that a place may be visited proves to be out of date when the visitor arrives.

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Railway Interests in Air Transport

Twice during recent weeks brief official statements have been made by the British railway companies about their acquisitions of further shareholdings in air transport companies, and in each case the transaction has involved the railway purchase of shares from interests with which the railways were formerly in partnership. The position was further clarified by Mr. Robert Holland-Martin when he presided a month ago at the annual general meeting of the Southern Railway. Of the first of the two transactions (announced last November) he explained that the L.M.S.R., the G.W.R., and the Southern Railway had acquired the capital of British & Foreign Aviation Limited, a finance company heretofore associated with the British Electric Traction Co. Ltd., with holdings in a number of companies interested in various internal and cross-channel routes. British & Foreign Aviation Limited, a private company incorporated on June 14, 1938, has held an important place in internal air-line operation. Its direct wholly-owned subsidiaries are Air Commerce Limited and the Olley Air Services Limited; it also owns one-half of the capital of Great Western & Southern Air Lines Limited; and a substantial indirect interest in West Coast Air Services Limited. Olley Air Services Limited controls the Air Booking Co. Ltd. and Channel Air Ferries Limited, as well as one-third interest in the Isle of Man Air Services Limited. The new arrangements would appear to give the L.M.S.R. for the first time participation in certain air transport activities which heretofore have interested only the Great Western and Southern Railways. Of the second railway purchase, Mr. Holland-Martin said that the additional holdings acquired in Channel Island Airways Limited meant that that company and its subsidiaries (Jersey Airways Limited and Guernsey Airways Limited) were now wholly owned by the G.W.R. and the Southern Railway.

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Sixty-Minute Bridge Renewals

A problem which besets most renewals of underline bridges on railways, and especially on routes carrying dense traffic, is that of obtaining possession of the line for a sufficient time to carry

out the replacement without seriously interfering with the traffic. On p. 381 a description is given of the way in which the New York, New Haven & Hartford Railroad engineers minimised this interference, when renewing 15 underline bridges on 12 miles of its electrified four-track main line between New York and Hartford, by a species of mass production, whereby assembled spans, complete even to sleepers and ballast in position, were brought to each site and installed with a rapidity which probably created records in this class of work. The plan adopted was to provide a separate span for each track, with overall width sufficiently restricted to permit it to be loaded on a flat wagon, within the ample limits of the American loading gauge. Construction was of the simplest, with 3-ft. deep rolled-steel beams acting as main girders, and the use of welding wherever possible, as for example, in assembling the steel-plate decking of each span. The procedure was to dismantle the southernmost span of each bridge first, with the next track also in possession, for the use of cranes and wagons, and after a new southern span had been installed, to move successively across the bridge to the northernmost span, with not more than two tracks in occupation at one time. The installation forces became so proficient that, as the jobs proceeded, the time between breaking and restoring the track over each span, including removal of the old span and installation of the new, came down to no more than 1 hr.

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Transport at Royal Ordnance Factories

A Royal Ordnance Factory may employ up to 30,000 workpeople, according to whether it is engaged on the production of ammunition, explosives, or weapons. It may cover many square miles of land, and for reasons of security it must, in general, be situated in the country, as far removed as possible from populated districts. The handling of hundreds of wagon loads of traffic in and out of each factory every day may be involved, and in all cases provision must be made for the transport of workers. The organisation of transport for these factories, for both personnel and production purposes, devolves on the Transportation Department of the Ministry of Supply, in collaboration with the Ministry of War Transport and the railway companies. The arrangements which have been made, and which have worked successfully during the present war, provide that immediate responsibility for transport arrangements at Royal Ordnance factories rests on factory transportation officers who operate under the direction of the Controller of Factory Transportation of the Transportation Department of the Ministry of Supply in London. Some of the problems which that department has had to meet, and the methods it has used to overcome them, are dealt with in an illustrated article on page 385. In some of the factories the area covered is so extensive that the distance between the entrance gate, or railway station, and the place of work may necessitate the provision of internal bus services. These are provided by specially-designed vehicles, some details of which were given in our September 5, 1941, issue, and as many as 20,000 workers are carried daily by this means at a single factory. On the freight side, junctions and exchange sidings have been provided in co-operation with the railways, and in many cases it has been necessary to lay in very extensive sorting sidings. As much as 26 miles of track has had to be laid inside a factory.

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Locomotive Boiler Evaporation

As long ago as 1915 it was realised from tests undertaken at the Altoona plant of the Pennsylvania Railroad that a fairly reliable approximation of the maximum evaporation of a locomotive boiler of normal proportions could be gained from a consideration of the free-gas area through the tubes and flues. For what were then large main-line locomotives, the maximum evaporations were determined as approximately 7,000 lb. actual and 9,100 lb. equivalent evaporation from and at 212° F. per sq. ft. of free area through the boiler per hr. These figures refer more particularly to boilers with superheaters of the normal four-pass element type, but as far as can be ascertained it seems that these can be increased by 5 or 6 per cent. in up-to-date engines to, say, 7,500 lb. actual and 9,500/9,750 lb. equivalent evaporation. These values refer to boilers with the A type of superheater, and applied to English practice would mean that the L.N.E.R. Pacifics of class "A3" would have a maximum possible evaporation of about 48,000 lb., and the Southern Railway 4-4-0 "Schools" class about 35,000 lb., but we would imagine that such figures are beyond the capacity of these boilers even under forced conditions. It would seem therefore that the values obtained from the Altoona plant cannot be related to English practice. Where the multi-flue E-type superheater has been installed in large boilers, certain American tests have established that maximum equivalent evaporations up to 11,000 lb. per hr. per sq. ft. of free area are possible.

Record Railway Earnings

THE Government White Paper, reproduced on page 392, shows that during 1942 the estimated net revenue of the railway pool reached the record figure of £89,126,000, as compared with £65,125,000 in 1941. Thus, after allowing for the guaranteed payment of £43,469,000 to the controlled undertakings, the Exchequer benefited by the handsome sum of £45,657,000 as compared with £21,656,000 in the previous year.

During 1942 the pooled gross receipts rose by 16·8 per cent. compared with 1941; passenger receipts showed an increase of 23·7 per cent., freight receipts of 11·2 per cent., and miscellaneous receipts of 13·1 per cent. On the other hand, expenditure, although showing an increase of £25 millions over the previous year, was only 11 per cent. up, with the result that the net pool revenue was no less than 37 per cent. up over 1941 after allowing for deductions in respect of "other pool receipts and expenditure," a generic heading which includes the net revenue or loss on steamboats, dock, wharves and harbours, hotels, collection and delivery of parcels, rents, interest, etc.

The White Paper also sets out the sums representing the difference between maintenance expenditure and the standardised maintenance charges of the controlled undertakings which stands to their credit in the trust funds set up in pursuance of the railway agreement. Including the L.P.T.B., these amounts now reach the impressive figure of over £67 millions which, as explained in our columns recently, will enable the controlled undertakings to finance their arrears of maintenance after the war.

It will be recalled that the Railway (Powers) Agreement specifically placed on record the standard revenues of the controlled undertakings. On the assumption that interest was paid in full on the London Transport prior charge stock and 5½ per cent. on the "C" stock, the standard revenues totalled £57,011,968—a figure which, in pre-war days, was frequently considered impossible of attainment by the railways. Yet, notwithstanding the very heavy cut in passenger facilities and the reduction in freight mileage arising from the various zoning of traffic schemes, this figure was exceeded in 1942 by nearly £32 millions.

As the revised financial terms agreed by the railways with the Government in 1941 were insufficient to allow of the payment of any dividend on some £78 million of the L.N.E.R. stock or the payment of full dividends on many millions of other capital, it is not surprising to find that the margin between the railway earnings and the payment from the Government, a matter of £45½ millions, is sufficiently wide to create some dissatisfaction among certain classes of railway stockholders. They feel that the margin is sufficiently wide to permit of a generous gesture by the Government, particularly as it would be a very bold man who would claim that the 1942 results represent the peak of the railway effort. With national production still rising and the commencement of major offensive operations imminent, it is possible that the railways will be called upon to carry an even heavier load during 1943 than the tremendous burden they carried so smoothly and successfully during 1942. It may even be that their earnings during the current year will reach the staggering figure of £100 millions, but the present war has been so consistently full of surprises that the probabilities for 1943 must obviously be entirely a matter for speculation at present.

What are the facts so far as railway stockholders are concerned? For many years before the war railway earnings were very seriously reduced by the inequitable conditions under which the companies had to compete with road hauliers and the Government took no active steps to redress the position. As Sir Thomas Royden recently put it, they were hampered by a mass of statutory obligations and limitations which, and doubtless reasonable when the companies held a monopoly, were completely out of place when monopoly had given way to an era of unrestricted competition. The railways therefore had to face the necessity for reducing their efficiency by cutting expenditure, or reducing the dividends to stockholders. To their credit they chose the latter course as being both in their own and the national interest.

When in 1941, however, the Government desired to revise the original financial agreement associated with the control of the railways, they used the level of the reduced pre-war net earnings and, inferentially, the low dividends paid to railway stockholders, as a lever for fixing the guaranteed payment at a level which prejudiced many thousands of railway stockholders. Consider for one moment what the position would have been had the railway companies put dividends first. They would certainly not have been able to carry on through 3½ years of war without expending the bulk of the £67 millions representing deferred maintenance. The necessity for carrying out even a portion of this work would have diverted a considerable amount of labour and materials from war production and caused an

appreciable slowing up of the war effort. With the war costing anything up to £15 millions a day, the potential cost of such a transfer of men and materials would have been enormous. Under existing conditions the stockholders now see their self-denial justified and their property used to a greater extent than was ever dreamed of—yet many of them stand dividendless. Thus on grounds of equity alone, they appear to deserve better treatment.

The question also arises as to whether the ordinary stockholders would have been any better off if the railways had been allowed to keep all their net revenue due to the war. In that event would not all the increased revenue have been absorbed by the Excess Profits Tax? Shareholders in commercial concerns have not been allowed to profit to any extent by the war. We notice that the British Railways Stockholders Union has some doubts on this point, for in its declaration of policy it is stated: "In certain quarters it is argued that these dividends [those possible under the original agreement] might not have been paid, because the profits would have been subject to Excess Profits Tax, but the decision of Government on this point has never been made clear and the union considers such deduction could not have arisen until standard revenue had been earned." We do not know on what grounds the union considers that E.P.T. would not have arisen until the standard revenue had been earned.

Now what is the position of the railway managements? In the first place they entered into the agreement under the stress of war conditions and circumstances were vastly more unfavourable than they are at present and invasion seemed imminent. Further, it contains no provision under which a revision can be sought. As Sir Charles Hambro, Chairman of the Great Western Railway Company, recently pointed out, the companies only accepted the payment of £43 millions as a war-time arrangement only because it was recognised that in time of war the national interest was paramount and necessitated ordinary commercial considerations being set aside. The companies also made it clear that they did not accept the figure as in any way representing the existing or potential earning capacity of the undertakings, a reservation which already has been amply justified. Moreover, the agreement extends beyond the range of peak traffics and continues until at least twelve months after control ceases; consequently the actual results of the agreement can be viewed in proper perspective only at a much later date. Although, therefore, the managements cannot approach the Government for a revision of the agreement, we think it will be clear to any reasonable man that the railway companies have a right to expect that, when peace returns, Parliament and the nation will see that they receive a "square deal" which will enable them to compete, or co-operate, with other forms of transport on equitable conditions.

Railway Freight Rebates

ON March 30 Lord Templemore, on behalf of Lord Leathers, the Minister of War Transport, introduced into the House of Lords the Railway Freight Rebates Bill, which is designed to amend the existing arrangements in certain important respects. It will be recalled that, for the purpose of stimulating trade and industry, the Local Government Act, 1929, included provision for relieving industrial hereditaments generally from the payment of three-fourths of their local rates. In the case of the railway companies, however, the Act provided that, unlike the occupiers of agricultural lands and buildings and industrial hereditaments, their relief should be conditional on corresponding sums being paid by them into a Railway Freight Rebates Fund, from which the money was to be used to assist trade and industry by the grant of rebates from the railway charges on certain selected traffics. The railways were, therefore, merely a conduit pipe through which rating relief in respect of the railways was passed on to traders. The only advantage to the railway was the increase in their competitive power, *vis-a-vis* other forms of transport, by reason of the reduction in railway rates caused by the grant of the rebates.

The Railway Freight Rebates Fund is administered statutorily by the Railway Clearing House, and the Railway Rates Tribunal is charged with the duty of reviewing its operations yearly before the end of November and of adjusting the level of the rebates in the light of the estimated relief for the twelve months ending the next September. At present four-fifths of the estimated relief available is distributed in rebates from the carriage charges on exported coal, coke, and patent fuel, and the balance on milk and livestock. With rebates on exported coal class traffic at their existing level of 1½d. a ton and 75 per cent. of the remainder of the carriage charges (80 per cent. in the case of tolls), only a part of the appropriate proportion of the amount available in the fund was paid out last year because of the diminution in the coal export trade. Further, the purpose for which coal rebates were introduced, that is, the stimulation of the coal export trade and of the carriage by railway of this coal, has ceased to exist under war conditions. To meet this unexpected position the new Bill provides that the coal rebates shall be suspended and that the money which would have been available for these rebates shall be paid to the Minister of Fuel & Power, who will use the money as directed by the Treasury.

It is intended that part of the money shall be transferred to a Government Coal Charges Account, first, to make good the loss sustained by the coal industry by the suspension of the rebates and, secondly, to reduce the cost of certain subsidies on abnormal transport charges which have had to be incurred by reason of wartime conditions. These subsidies are now being paid by the Government for the purpose of reducing the cost of coal to the consumer in those instances where coal has to be conveyed by rail considerably longer distances than formerly, or by other means of transport. No substantial change is proposed in connection with the rebates on milk and livestock traffic. The Bill provides that the revised arrangements shall commence on the first day of the month next to that in which the Act is passed and shall terminate on a day to be appointed by the Minister of War Transport, which shall be no later than the last day on which control of the railways is exercised by the Government. It also provides that the sum of £925,542 which had accumulated in the Fund by September 30, 1942, mainly because of under-distribution of coal rebates, adjusted as may be necessary by any payments into or out of the fund in respect of rate relief for periods before that date, is to be kept in the fund together with any interest until such time as coal rebates are resumed, when not more than the original balance is to be distributed by that means.

Bengal-Nagpur Railway Company Limited

RECORD gross earnings were secured by this company in the year ended March 31, 1942, exceeding the previous year's record total by approximately 1½ crores of rupees, or £1,125,000, and the company's share of the surplus profits amounts to Rs. 21,62,448, or about £162,000. In view of the uncertainty, however, as to taxation liability, the directors have decided to retain these profits in India until the position is clearer. The company is disputing the claim made by the Indian revenue authorities as from 1938-39 onwards that the guaranteed interest of 3½ per cent. payable by the Secretary of State on the ordinary stock under the working contract is liable to Indian income tax, but the question of the legality of this claim has not been finally settled by the Courts. Also the actual tax liability in India on the company's share of surplus profits is not yet known as negotiations are still proceeding in respect of the basis of Excess Profits Tax. In the United Kingdom the income tax authorities have admitted the company's claim for a substituted profits standard, but the tax liability here cannot be ascertained until the tax paid in India is known. The directors, therefore, have decided that the year's dividend cannot be higher than the 4 per cent. paid for each of the two preceding years. In the accompanying table figures for the year under review and the preceding financial year are compared:—

	1940-41	1941-42
Mean mileage worked	3,296	3,298
Passengers	21,973,978	23,780,220
Passenger miles	983,161,145	1,050,610,777
Goods, tons	20,612,025	21,292,631
Goods, ton-miles	3,755,560,011	4,151,282,092
Operating ratio, per cent.	57·56	50·69
	Rs.	Rs.
Passenger receipts	1,78,27,158	1,94,39,931
Goods receipts	9,54,46,614	10,35,47,459
Gross earnings	12,00,06,375	13,32,55,925
Expenditure	6,90,77,847	6,75,44,777
Net earnings	5,09,28,528	6,57,11,148

The capacity of the railway was strained to the utmost with extra general traffic diverted from sea routes and by the movement of essential war supplies and personnel. In passenger traffic there was an increase in numbers and receipts in all four classes (first, second, intermediate, and third). The goods traffic figures shown in the table include coal. Working expenses show a reduction of Rs. 15,33,070, or 2·22 per cent. In general administration there was an increase of Rs. 6,88,360, in ordinary repairs and maintenance an increase of Rs. 4,55,149, and in operating expenses an increase of Rs. 17,38,734. Expenditure on replacements and renewals was lower by Rs. 43,37,195.

Last Broad-Gauge Director

THE last link on the Great Western Railway Company's board with the broad-gauge has been broken. Sir H. L. Watkin Williams-Wynn, Bt., C.B., who, as announced at the recent meeting of the Great Western Railway Company, has resigned his directorship, joined the board of that company in 1885, in succession to his uncle, the late Sir Watkin Williams-Wynn, Bt., M.P., from whom he inherited the baronetcy. At that time the owner of Wynnstay had the right to appoint a director to the Great Western Railway board; this right originated in 1845, when it was granted in connection with the North Wales Mineral Railway under the North Wales Mineral Railway Act of that year. That railway later was merged in the Shrewsbury & Chester Railway, which in its turn became part of the Great Western system. The Wynnstay right of appointment was abolished by the passing of the Railways Act of 1921.

At the time of his appointment, Sir Watkin Williams-Wynn was 25 years of age; and he has been a member of the board for nearly 58 years. He is the only surviving director of the Great Western Railway Company who joined the board before the broad gauge was abolished in 1892; the director with the next longest period of service is Lord Palmer, who was elected in 1898. In this connection it is interesting to record that Sir Watkin Williams-Wynn took part in the Great Western Centenary Film, in connection with the G.W.R. Centenary celebrations of 1935, and was filmed as one of the personages at the opening of the railway to Maidenhead in 1838. In 1865, the late Sir Watkin Williams-Wynn enabled Daniel Gooch to join the board by retiring and nominating the latter to represent him, as he was entitled to do under the Amalgamation Acts of 1854 and 1863. Gooch was elected Chairman shortly afterwards, and in 1866 another director, John Williams, agreed not to stand for re-election, so that Gooch was elected to the board, which the late Sir Watkin Williams-Wynn then rejoined. A few years later, about 1870, gold was found on the Wynnstay estate and some of the gold passes held by the company's directors were made from this metal—including the pass which Sir Watkin now holds and which was held previously by his uncle. Sir Watkin has been Lord Lieutenant of Montgomeryshire since 1891. He was M.P. for Denbighshire in 1885, and High Sheriff in 1890; and at one time he commanded the Montgomeryshire Yeomanry Cavalry.

The following table shows the changes in the Chairmen and General Managers since Sir Watkin Williams-Wynn joined the board in 1885 :—

Chairmen		General Managers	
Sir Daniel Gooch	1865–1889	James Grierson	1863–1887
F. G. Saunders	1889–1895	Henry Lambert	1887–1896
Viscount Emlyn	1895–1905	Sir Joseph Wilkinson ...	1896–1903
Alfred Baldwin	1905–1908	Sir James Inglis	1903–1911
Viscount Churchill	1908–1934	Frank Potter	1912–1919
Viscount Horne	1934–1940	Charles Aldington ...	1919–1921
Sir Charles J. Hambro ...	1940–	Sir Felix J. C. Pole ...	1921–1929
		Sir James Milne	1929–

When Sir Watkin Williams-Wynn joined the board, Mr. F. G. Saunders was Secretary; he had held this office since 1863, and in 1886 he was succeeded by Mr. J. D. Higgins. Mr. G. Kaye Mills was appointed Secretary in 1892, and held office until 1910, when he was succeeded by Mr. A. E. Bolter, the predecessor of Mr. F. R. E. Davis, the present Secretary, who has occupied that position since 1926. The gross receipts of the company in 1885 amounted to £7,728,802, which compares with £31,039,727 for 1938, the last year before the outbreak of the present war. Expenditure during the same period has risen from £3,768,104 to £26,389,483, and the comparable net receipts for 1885 and 1938 were £3,960,698 and £4,650,244 respectively. Thus comparing 1938 with 1885, gross receipts showed an increase of 300 per cent., expenditure of 600 per cent., and net receipts of only 17 per cent. The dividend on the ordinary stock for 1885 was 5½ per cent. and in 1938 was ½ per cent. Rolling stock for the earlier year comprised 1,818 locomotives, 3,211 passenger vehicles, and 38,550 merchandise and mineral vehicles; in 1938 it was 3,631 steam locomotives, 1 diesel oil electric locomotive, 18 diesel railcars, 8,697 passenger-train vehicles, and 82,453 merchandise and mineral vehicles. The total operated mileage in 1885 was 2,594¾, which compared with 3,781¼ in 1938.

Locomotive Boilers

THE sustained hauling capacity of a steam locomotive depends primarily on the ability of the boiler to provide the necessary steam, and to keep pace with the continually-increasing demands for power. The need for still further development is now beginning to tax the resources and ingenuity of designers. It is not surprising therefore that more attention and study is being given to boiler design and to the proportioning of its related parts, the ultimate purpose of which is to improve its power-weight ratio. In the past an increase in power could be solved by direct methods involving simply some increase in size and weight on the driving wheels. Now, however, something more is required and the problem is how to increase capacity without adding to the engine weight, and so far as the boiler is concerned this means more steam from given heating surfaces; in other words, more water must be evaporated and turned into highly-superheated steam for each lb. of coal charged into the firebox. This is not easy, but with improved boiler design and proportions considerable success is being attained. Locomotive engineers can look with justifiable pride and gratitude on the multi-tubular boiler known the world over in all walks of engineering as the "Loco." type boiler. This conception of Stephenson's, now in the one-hundred-and-thirteenth year of its existence, is as yet the only one which comes anywhere near meeting requirements, and moreover with fairly good efficiency from the point of view of steam production. So far as its function as a means of heat transference is concerned, it is excellent, for of the heat actually produced in the firebox the modern boiler can be said to take up 90 per cent. of that which it is physically capable of absorbing. Herein lies the reason why from the thermal standpoint this type of boiler is the only one on which it is worth spending time to develop for steam locomotive requirements. What is now required is to increase the amount of heat available; the boiler can take it provided that the coal fired can be efficiently burned. This is the reason why so much attention is now being centred on the proportions of the firebox and particularly the relation between firebox volume and grate area, for it is realised that these dimensions must be inter-related. Mainly as a result of the investigations made by Fry, based on experimental test plant data, firebox efficiency can be estimated with exactitude and the amount of fuel that escapes unburned closely ascertained. It might be thought from the foregoing that locomotive engineers have done little in developing boiler design; such, however, is not the case. Efficiency in working has improved so greatly that without feed-water heating and the pre-heating of the air required for combustion, figures of from 70 to 75 per cent. are attainable under normal loading, and when extended the modern boiler can and will provide one cylinder h.p. for each sq. ft. of water heating surface and this when steaming to single-expansion non-condensing engines.

Even so, there is room for still further improvement and much thought and attention is being devoted to the subject by locomotive engineers. For this reason discussions centred in the proportions of boilers are always worth while and the short series of articles commencing on page 382 of this issue will, it is hoped, serve to this end. What must always be remembered is that the boiler represents the factor on which the whole of the design of a locomotive is based, and unless efficiency in this direction can be counted on, all efforts aimed at improving valve gears, front ends, and other components must of necessity fail to achieve their purpose to the desired extent. The reverse, of course, also applies, for a really good boiler, able to generate all the steam demanded in the varying conditions of the work to be performed cannot in itself make a success of an engine that is faulty in other fundamentals. Stress is often laid on the search for increased tractive force and, obviously, much importance attaches to the figures denoting this as the measure of power output, but we well remember a remark, made to us by the Chief Mechanical Engineer of a large railway some years back, that in a class of engine then proposed he was concentrating on the boiler and not too much on how the tractive force worked out.

FISHPLATES.—From the introduction of railways until 1847 rails were laid without any rigid connection between them endways, and were simply placed one against the other in a chair made of extra size for the purpose, or tapered, with overlapping ends, as in the William Losh and George Stephenson patent of 1816. In 1847 the system was introduced of uniting the rail ends by fishplates to secure vertical strength, and both the method and the name remain with us substantially unchanged. It appears, however, from inquiries which reach us from time to time that considerable uncertainty exists as to the origin of the word. As long ago as 1666 (and probably earlier) the term fish was used in nautical language for a splint used by sailors to mend masts and spars. It is fairly certain that this meaning of a splint was intended when, in 1847, William Bridges Adams patented the fishplate for strengthening a rail joint and permitting the suspended joint. His patent specification is the first known use of the complete word "fishplate." It has been suggested that the term fish was applied because the early fishplates were convex on one side, and a pair of them resembled a fish cut in two. Although this may have been the origin of the nautical term, it is almost certain that the railway word was derived from shipping practice and not direct from any resemblance to a fish.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

War Advance Claim by Senior Railway Staff

70, Church Street,
Woking, April 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was interested in your article of March 19 on the war advance claim by senior railway staff as it is not as if this was the end of the injustice. There are also such matters as overtime for extended working week not paid for to staff earning over £500. This means that a senior earning £525 a year is considerably worse off than his assistants earning, say, £500 plus overtime £75 a year, total £575.

Again there is the matter of annual leave ; here a senior receiving over £500 a year and who has two weeks leave in lieu of three weeks, does not like his colleagues receiving up to £500 getting the equivalent in cash.

These are two additional hardships. There are others making one sometimes wonder why one accepts these responsible positions. You might care to express these facts in your next issue.

Yours truly,
P. W. RAYNER

"Initiative" in After-War Transport Planning

Freeman's Farm,
Bardfield End Green,
Thaxted
April 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Thank you for the paragraph on page 349 of the April 2 issue of *The Railway Gazette*. I feared the heading given to my letter in the March 26 issue might be misunderstood. However, your paragraph emphasises precisely the point I wanted to bring out—that the future of transport is the joint responsibility of the railways and road transport. The danger is that while they are trying to outmanœuvre each other the enemy may enter the city, at any rate so it seems to me.

As a matter of fact, I fancy that by the time we emerge from the war we shall find ourselves in such a mess that almost any so-called "remedy" will get a hearing. Heaven for the crank and the agitator is a country in a mess.

Yours sincerely,
ASHLEY BROWN

Education and Training of Railway Staff

April 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was very interested in reading the article on "Education and Training of Railway Staff," on p. 259 of your April 2 issue.

I notice in the third paragraph of the third column that the writer is of the opinion that the clerical staff should be eligible for promotion to three groups—supervisory, technical, and administrative—and suggests, under the heading of "Technical Group" that the candidates would need opportunities for doing practical work during vacations and that they would be encouraged to sit for the examinations of the various professional institutes.

Although I agree that a certain amount of training in the technical departments, to get a general idea of the work undertaken by them, would be highly desirable, this training would not qualify the candidate for positions in the technical departments, or for membership in the major engineering institutions, and to my mind this proposal may be misleading to a number of young men.

In my opinion, there is no royal road to mechanical engineering, and anyone who desires to be on the mechanical engineering side of a railway requires the fundamental training of a mechanical engineer in the shops as well as the necessary technical training. Mechanical engineering requires as much care and time in the initial training as any other profession and it would be disastrous to encourage young men to think that there is a short cut that can be taken by merely going to a training centre such as is envisaged in the article.

Yours sincerely,
MECHANICAL ENGINEER

Gascoigne's Private Railway

The Information Agent,
London & North Western Railway
H.Q.1 (*via* Hitchin)
March 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Since the publication of Mr. Kenneth Brown's letter in your issue of January 15, I have made some inquiries and find that the only line in the North-Eastern Area known as Gascoigne's Private Railway was the little branch that ran from Garforth on the Leeds & Selby line to the village of Aberford on the Great North Road. The railway was also known as the Aberford Railway and was in fact described under this title on pages 102-3 of *The Railway Magazine* for April, 1942.

If there is another line known as Gascoigne's Private Railway, then I think, from the information our Estate Department have been good enough to give me, this must be in some other part of the country and not in the territory served by the L.N.E.R.

Yours faithfully,
GEORGE DOW

London, W.C.1, March 31

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of January 15, Mr. Kenneth Brown inquired when, where, and how was Gascoyne's (Private) Railway. He then quoted its length as 1,895 yd. In his presidential address to the Railway Club he has since shown that the length should have been given as 4,895 yd., as the latter is the figure (but badly printed) in the Blue Book from which he quoted.

This new fact seems to supply the key to the identity of the line. The Aberford Railway, running from Garforth (on the Leeds & Selby Railway) to Aberford, was owned by Colonel Gascoigne. The Leeds & Selby Railway was opened for passenger traffic on September 22, 1834 (according to Grote Lewin), so that the line from Garforth to Aberford might usefully have been constructed at any time thereafter. Its length (as roughly scaled by me from the ordnance map) was 4,840 yd., and there was a short branch to a coal staith near Parlington. Thus, there seems to be a close approximation between the Aberford Railway and the "Blue Book" line. There was an article in *The Railway Magazine* for April, 1942 (page 102), which was discreetly vague about when the line was built, and quoted the *L.N.E.R. Magazine* for the conjecture that it was constructed about 1845. If the Aberford Railway was, in fact, Gascoigne's Private Railway to which Mr. Kenneth Brown referred, we learn that it was working, and carrying passengers, at least as early as 1838.

Yours faithfully,
CHARLES E. LEE

Publications Received

The Work of the Railway Clearing House, 1842-1942. London: *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1. 9 in. × 6 in. 24 pp. Price 2s. 6d. net.—Although the Railway Clearing House or the R.C.H. as it is familiarly called in railway circles, is well known to every railwayman, as it is also to the many trading organisations throughout the country, its uses and functions are little known to the general public, and it is not too much to say that *all* its uses and functions are known to very few. From time to time, however, a glimpse of the important work for which the Railway Clearing House is responsible is given in the form of articles and lectures, and the centenary of this organisation, which fell on January 2, 1942, provided the most recent occasion for giving members of the public some insight into the work. In war conditions, an adequate centenary celebration was impracticable, but *The Railway Gazette* published a series of illustrated articles on the work of the R.C.H., of which the present booklet is a reprint in more permanent form. It is divided into three chapters. The first deals with the history of the organisation ; the second with the work of the traffic department ; and the third with the work of the secretarial department. The booklet is fully illustrated. The pictures include views of the original R.C.H. headquarters, the modern extensive buildings in Eversholt Street (formerly Seymour Street), Euston, views inside the offices, a facsimile of the corporate seal, and portraits of every chairman since the beginning (11 in number), and every secretary (8 in all). Although the typography of this book conforms to the Book Production War Economy Standard, it has nevertheless been found possible to achieve quite an attractive result.

Belgian Africa's Total War. By Walter Ford. Published for the Belgian Information Office by Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1. 7¼ in. × 4¾ in. 56 pp. Illustrated.—Although Belgium is in the hands of the enemy, the Belgian Government in London commands the wealth of the Belgian Congo, a territory eighty times the area of the mother country, and comprising a twelfth of the African continent. This booklet describes the great resources which this colony is able to place at the disposal of the Allies, and the finance, purchase, and military agreements which have been made between the British and Belgian Governments. There is a foreword by Lord Cranborne. A number of figures is given relating to the production and export of the colony's resources, which include gold, copper, tin, tungsten, rubber, copal, ground-nuts, palm kernels and palm oil, sugar, coffee, and jute substitutes. There are twelve illustrations and a map showing the distribution of the chief resources throughout the Belgian Congo; and a short account is given of Government regulation of trade and industry.

The Scrap Heap

About **50,000,000** used railway-tickets, weighing about **38** tons, were sent to the mills for repulping by the Great Western Railway during **1942**.

* * *

Shortage of towels in the London Transport railway overhaul works has led the board to set up a laundry service. In this way, a quicker turnover is obtained and more towels are in daily service. Miss Lillian Lacey, a fitter's assistant at the works, is in charge. Before the war, she worked with a firm of boot-polish manufacturers.

* * *

Stratford & Moreton Railway

We are indebted to Mr. Kenneth Brown, President of The Railway Club, for sending us a photostat of a curious old handbill dated Moreton-in-Marsh, July 24, 1826, announcing "a great market." The particular railway interest of this poster is that it announces the coincident opening on Tuesday, September 5, 1826, to public use of the Moreton Rail-way. With considerable foresight for so early a period, the whole bill is headed "*Pro bono Publico* ! ! !"

* * *

Figures recently issued by the L.P.T.B. show that London travellers are becoming more careful of their belongings in the Underground trains, buses, trams, and trolleybuses. On a million passenger journeys in 1938, 86 articles were lost. In 1941 the figure was 85; and in 1942 it was 62. Last year 205,211 articles were received at the lost property office in Baker Street, 37,314 fewer than in the previous year. Gas masks and other war equipment lost totalled 28,777, a decrease of 62·7 per cent. The number of umbrellas left in vehicles was down 26·3 per cent.; 18,000 garments also were left behind. Pairs of gloves totalled 27,000, and 11,000 people lost one glove only. Five thousand passengers went home without their spectacles.

* * *

A Wartime Vocabulary

One with the time and inclination might find an interesting occupation in the compilation of a glossary of wartime words and phrases now in common use. Maybe our vocabulary has been enriched thereby. Maybe not, but certainly many will be found taking a dim view of continued references to *Blitzes* and *Blitzkreigs*—allied or enemy—and will resent this apparently subtle infiltration of German words into our language in fifth column style.

Indeed, many may be fearful that it will be difficult, if not impossible, to liquidate these foreign elements when the desire so to do arises as, doubtless, it will arise when aggression definitely flops, post-war plans are all buttoned up, and peace once more is laid on.

True, there are salient features of this wartime vocabulary which will perhaps outlast hostilities and become fixedly part of the vernacular. Perhaps "X marks the spot" has been displaced permanently by the arrows and dotted lines with which, in blackout compartments with train illumination so reduced as to avoid any unauthorised spillage of light, we endeavour to trace in our daily newspapers the course and development of pincer and nutcracker movements of opposing armies.

True, again, those who seek to be free from that browned-off condition likely to result from being constantly tee'd up to their tasks may find the requisite spice of variety from the common round in identifying and endeavouring to eradicate those bottlenecks in railway operation of which so much is so frequently heard.

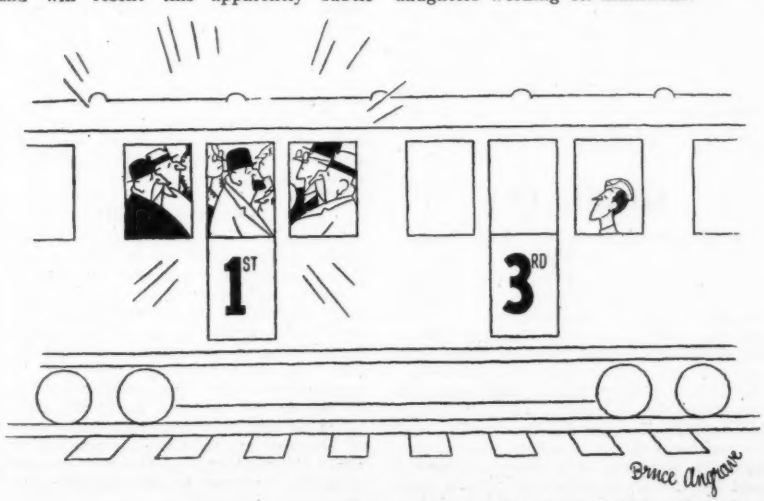
* * *

A Railway Signature

The signature below appears in our Portuguese contemporary *Gazeta dos Caminhos de Ferro*, at the end of some notes on railway matters :—

* * *

Porter Tom Pruden, L.M.S.R., of Wigan, has collected in his spare time 200 tons of scrap in less than two years. A recent typical wagonload of scrap salvaged by Porter Pruden was 1 ton scrap metal; 40 cwt. paper; 300 tin cans; 25 lb. rubber; 1 cwt. cardboard; 100 milk bottles; 25 lb. cable wire; 22 lb. cork caps from bottles; and 10 lb. brass, copper, and aluminium. Salvage is one of his hobbies, which include also poultry-keeping, gardening, and A.R.P. work. He was in the Home Guard until his doctor made him give that up. He has four sons in the Army, and two married daughters working on munitions.



[*Reproduced by permission of the proprietors of "Punch"*

Mr. F. C. A. Coventry's Transport Experiences

An interesting event took place on March 17 when the G.W.R. Superintendents' Conference made a presentation and bade farewell to Mr. F. C. A. Coventry after his 31 years' membership in his capacity as Superintendent of Road Transport. Returning thanks Mr. Coventry reviewed his own association with transport. He traced his modes of locomotion from very early days when, with a vehicle of three wood wheels, iron shod, one girl power, he was propelled along the roads of Worcestershire, but his first recollection was at the age of five riding on a pony or donkey. Next he recalled rides in a pony and trap mentioning in passing that far more accidents were incurred in those days with a vehicle of this description per horse mile than per car mile with a motor of today.

A high bicycle of the penny-farthing type was the next method of transport he employed. This was during his school days and he said that he would as soon have taken this vehicle home for the approval of his parents as the barmaid from the local public house. He recalled what an adventure a ride on a vehicle of this description was, and how drivers of passing horse-drawn vehicles had often lashed at him with their whips and how he and his kind so mounted were described as ' cads on casters." Next a "safety" bicycle with solid tyres was the vogue, and later still the bicycle with pneumatic tyres; not the tyres of today, however, but those which were fixed to the wheel with an infinite quantity of adhesive tape.

A milestone in his transport history was the 1¼ h.p. motorcar on which he learned to drive. The engine of this vehicle was housed partly in the remains of a De Dion motor tricycle and parts of a bathchair—but it travelled! Next he possessed an 8 h.p. Mors dog cart. This taught him much about engines and was the source of great relaxation and amusement during his early days as an apprentice at Swindon Works. The time when he owned a motor bicycle might be described as his period of adolescence. Then in 1903 he, with the late Mr. Charles Aldington, were the instruments of the G.W.R. in the purchase from the late Sir George Newnes of some Daimler cars which were employed on the pioneer Helston-Lizard service instituted by the G.W.R. before the regular motorbus services were on the streets of London.

He recalled that one Blott was the original driver of one of these vehicles on this route; a man of most unprepossessing appearance, but, such was the glamour of riding with the driver of a motorcar in those days, that it was found possible to introduce a supplemental fare for ladies who rode on the front seat. Next he employed a Sunbeam motorcar which he used to a very great extent when co-operating with the Divisional Superintendents in reconnoitring routes for likely feeder services to the railway. In this connection he made the interesting observation that the Divisional Superintendents of those days had little or no knowledge of the roads and country which adjoined the line, but now, he remarked facetiously, the Local Officers appeared to know more about the roads than the railway. His recent progress had been, Rommel-like, from a 16 to a 10 to a 7 h.p. Austin, and now, continuing this mode of progression, the conference had presented him, at his request, with a push tricycle.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

Proposed Post-War New Line

Consideration of the construction of a new railway from Prince Albert, Sask., through Meadow Lake north and west to the Cold Water region of Alberta and into the Peace River Country, was proposed recently in a resolution placed on the Order Paper of the Canadian House of Commons by Mr. J. M. Dechene (Lib., Athabaska). He proposes that a programme entered into some years ago by the two great transport systems be studied as part of any post-war development plan.

UNITED STATES

Railway Sued in Fire Case

A remarkable action is in course of being fought out in court by the Federal Government against the Chesapeake & Ohio Railway. Some time ago a forest fire broke out in the State of Virginia, and threatened to destroy the George Washington National Forest, which is owned by the United States. It is alleged that the fire was caused by sparks from C. & O. locomotives, and that, in this matter, as well as in failure to take any steps to extinguish the fire, which burned for seven days, the C. & O. RR. was negligent. The fire rapidly was approaching Government property when Government employees stepped in and put it out. The Government is seeking to recover from the railway the cost of extinguishing the fire; the Federal district court of West Virginia ruled in favour of the railway, but the case has been carried to the Fourth Circuit Court of Appeals, which has reversed this decision.

Washington Union Station

One of the busiest passenger stations in the United States is the Union Station at Washington, D.C., the national capital. The city had a population of 330,000 in 1920, 437,000 in 1930, 663,000 in 1940, and now has one of 1,250,000—an astonishing growth. Before the present war, ticket sales ranged from $40,000 to $60,000 a day, but in July, 1942, sales totalled $2,225,000—an average of no less than $72,000 a day. The record was reached on July 3, 1942, when ticket sales reached a new high record of over $130,000 in a single day. On any good Saturday or Sunday 130,000 passengers (practically none of whom are season ticket holders) use the station, and the average throughout the week in the summer of 1942 was 105,000 daily. Of these, 14,000 on the average use the telephone booths, and 7,000 patronise the restaurant; some 80,000 inquiries are made each day. The ticket office and information and reservation bureaux require a staff of 121 ticket sellers, 110 information clerks, 125 reservation clerks, 20 message clerks, and an accounting staff of 40, out of a total staff of 451. It should be remembered, of course, that the issuing of tickets is a much more complicated business in the U.S.A. than in this country, due to the distances covered, the complications of possible routing, and the variety of Pullman, sleeping, and parlour car reservations; a large proportion of the passengers reserve space, not only in Pullmans, but also on the all-coach trains on which this facility is now available. Regular passenger trains using Washington Union Station, which is terminal, number about 250 daily, and numerous extra sections are run as required. There are 36 tracks in the station, 28 of which are daily in use for passenger trains, and 6 for mail purposes. Six of these tracks have been added recently, and the platforms lengthened at the same time. Approaches to the station are controlled by the "K" all-electric interlocking tower, which has 172 levers.

Wrought-Iron Plates as Tunnel Lining

Some interesting repair work has been carried out recently in the Greentree Tunnel of the Pittsburgh & Lake Erie Railroad. This is a double-track tunnel, 4,716 ft. long, through shale and sandstone, which was opened in 1904. The middle 1,500 ft., at first lined with timber, and, two years later, with concrete, passes near its centre through the Pittsburgh seam of coal, which had been mined before the tunnel was opened, but in which pillars of coal had been allowed to remain to prevent pitfalls. Subsequently, however, irresponsible persons removed this coal, and the ultimate result, early in 1941, was that a section of the tunnel, 2,200 ft. from the east portal, began to show signs of collapse, with water coming through the lining under considerable pressure. Temporary timber shoring was put in hand at once, and plans were prepared for a permanent strengthening of the tunnel lining. This now has been carried out by means of channelised Armco wrought-iron plates, 60 in. long by 18 in. wide by $\frac{3}{16}$ in. thick, formed to the desired curvature, and provided with flanges which permit adjacent sections to be bolted together; they can be erected thus in 18 in. rings without any timber staging or falsework. In the 99 ft. length of the tunnel which first gave trouble, the work of installing the liner-plates was begun in March, 1941, and finished in October of that year; in March, 1942, a further section of the old lining, 200 ft. long, which was showing signs of failure, was taken in hand, and was finished last January. The arch rings are carried on the bench walls at both sides of the tunnel, and the existing concrete was cut back to permit their erection; grout then was passed through the plates under pressure to fill in the remaining space between the lining and the original tunnel wall, and the final operation was to deposit a 2-in. lining of shotcrete, reinforced with wire mesh, on the inner side of the arch ring. Armco blast-plates have been provided throughout the whole of the 299 ft. of tunnel which has been dealt with, above the tracks, to protect the shotcrete from disintegration by reason of locomotive exhaust.

ARGENTINA

Railwaymen's Aid for Red Cross Funds

The spontaneous and successful efforts of the non-British staffs of the British-owned railways in Argentina to raise funds for the Red Cross organisations of the United Nations have proved both striking and valuable. Shortly after the outbreak of the war, district committees were formed by the Argentine personnel of the different railways for the purpose of collecting funds to purchase mobile kitchens, ambulances, medical supplies, and other equipment; and by the organisation of various entertainments, many thousands of pounds have been raised to provide foodstuffs for prisoners-of-war and to contribute towards other Red Cross activities. The efforts of the district committees of the railways have been combined and co-ordinated by a central committee; the latter body is responsible for the allocation and distribution of the money which is remitted to London through the medium of the British Community Council in Buenos Aires, the Chairman of which is Sir William McCallum, K.B.E.

Large Sums Raised

The sum raised in this way by the combined non-British staffs of the B.A.G.S.R., the B.A.W.R., and the B.A.M.R. up to December 31 last amounted to £36,500. Of this, £10,361 was allotted for the purchase of 27 motor ambulances, canteens, and mobile kitchens; £3,923 for medical equipment, clothing and other items; £4,254 for the purchase of 16 kitchen trailers; £2,500 for 6 communal restaurants and sanitary units; £1,835 for the adoption of 84 prisoners-of-war; and £12,383 to the Central Red Cross Fund. At the date in question there was a balance awaiting remittance to London of £1,235.

The sum subscribed by the non-British staff of the C.A.R. up to the end of December last amounted to £10,705, and by that of the B.A.P.R. to £6,982; the latter also collected, and forwarded to London, 130,000 eggs. Equally gratifying results have attended similar efforts by the Argentine staff of the Entre Rios and Argentine North Eastern Railways, which together collected, up to the middle of December last, £1,470.

CEYLON

Increased Goods and Parcels Traffic

A considerable increase in parcels traffic has occurred recently on the Ceylon Government Railway. At Colombo Fort Station the average revenue from this traffic handled in the last few months of last year was nearly double that during the latter part of 1941. Extra vans have had to be attached to many trains leaving Colombo.

Various steps are being taken to ease the difficulties of the railway authorities in coping with the increasing volume of goods traffic. Under a recent Government Order, goods may be delivered after arrival at any time between 7 a.m. and 5.30 p.m. without previous notice to the consignee. Other measures proposed or approved include limitations on the advance booking of sleeping berths, enabling less sleeping cars, and more parcels vans, to be run; and the elimination of the carriage of horses and motorcars by rail. To assist the maintenance of punctual running, restrictions are to be placed on the weights of parcels consigned by passenger train, making for speedier loading and unloading.

Losses by Theft

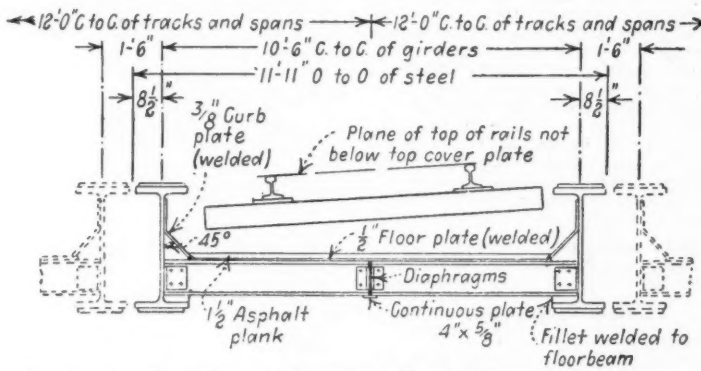
The theft of articles, particularly of foodstuffs, consigned by rail has shown a considerable increase recently and has been resulting in serious losses to the Government Railway. Pilfering has been traced in some cases to various outside and temporary porters, and stricter control is to be exercised over the engagement of these types of employee. Factors contributing to the recent increase in thefts are the blackout and the fact that many articles of baggage and merchandise are left overnight on platforms, as the storage accommodation at some stations is insufficient to cope with demands.

Mass-Produced Underline Bridges

To cut to a minimum interference with traffic on a U.S. electrified main line, mass-produced single-track spans were used

ON the electrified main line of the New York, New Haven & Hartford Railroad, between New York and New Haven, fifteen bridges recently have been renewed on a mass-production basis, by being lifted into position as completely-assembled units, even to ballast and sleepers. The bridges involved in this programme are on a four-track section, 12 miles in length, between Bridgeport and South Norwalk, Connecticut. The original bridges were built in the early 1890s, when the quadrupling of the line took place, and were equivalent to about the Cooper E-40 loading; early in the war, when the railway foresaw the increase of traffic that was certain to take place, replacement was decided on. Excepting certain bridges over tidal creeks, each bridge was renewed in single-track units, and, in the majority of cases, rolled-steel beams were used for the main girders in place of the original plate girders. Governing factors were that the existing sandstone masonry abutments, repaired and altered as necessary, were to be retained; to maintain existing road clearances, and at the same time to avoid raising the track more than a few inches at most, the depth from rail level to the underside of each span could not exceed 3 ft.; the 12 ft. spacing between track centres was not to be varied; and as already mentioned, to reduce track occupation to a minimum at the time of renewal, it was desired to adopt a design that would permit each single-track span to be assembled in advance as a complete unit, and set in position, track by track, at each bridge site as the old spans were removed. The spans varied in length from 28 ft. to 50 ft.

The problem of maintaining without variation the distance between track centres was greatly helped by making each span self-contained; with each main girder supporting only half of a single track (instead of the more usual plan of two or three main girders supporting a double line in a multiple-track bridge), it was possible to use relatively shallow girders which did not interfere with rolling stock clearances above rail level. These are spaced with centres 10 ft. 6 in. apart, and only 1 in. clearance has been left between the outside edges of span and span in the majority of the bridges. Two of the longer bridges alone have been provided with built-up main girders; rolled steel beams of H-section have been used for spans up to 40 ft. For the most part these are 36 in. deep × 17 in. wide × 280 lb. per ft., but in one bridge 36 in. × 17 in. × 300 lb. per ft. beams have been used, with a single cover-plate welded on, by means of fillet and plug welds, top and bottom. Intermediate stiffeners are welded to each girder, except at the ends; the end stiffeners, however, are riveted angles. The inside stiffeners are of special alloy steel to resist corrosion from contact with the ballast. To simplify the job of lifting into position, the end-plates of each girder were allowed to overlap at the top sufficiently to allow for the cutting of a hole 4½ in. dia. into which the crane-hooks could be inserted; after each bridge had been lowered into position, these projections were burned off flush with the top flanges of the girders. The built-up girders are of conventional design; in all other respects the construction of the bridges is of uniform type. The floor of each bridge is formed by broad-flange beams, for the most part of 10 in. section, 45 lb. per ft., with riveted connections. Over the cross-girders is laid a ½ in. deck-plate of wrought iron or steel, with butt-welded joints; the deck-plates are also fastened by fillet welds along both edges of the lower flanges of the main girders. Between the longitudinal edges of the deck-plates and the girders, a space 8 in. wide is closed by means of a ⅜ in. curb-plate, bent so that its lower half lies at an angle of 45 deg., and the upper half lies flat against the web of the girder, and extends upwards to a level above the top of the ballast; this curb-plate is butt-welded to the deck plates and fillet and plug-welded to the web of the girder. Protection from corrosion for the deck-plates is provided by a 1½ in. thickness of asphalt.


12'-0" C. to C. of tracks and spans
12'-0" C. to C. of tracks and spans
1'-6"
10'-6" C. to C. of girders
1'-6"
11'-11" O to O of steel
8½"
8½"
3/8" Curb plate (welded)
Plane of top of rails not below top cover plate
45°
½" Floor plate (welded)
Diaphragms
½" Asphalt plank
Continuous plate 4" x 5/8"
Fillet welded to floorbeam

Cross-section through one of the spans with rolled-beam girders, showing typical construction

The spans were delivered by the bridge-building firm to a concentration point, adjacent to the site, in a completely assembled condition, except for a short length of the decking and curb-plates at each end, which had been left open to allow the spaces between the deck and the lower flanges of the main girders to be filled with concrete, as these areas of steel would be inaccessible for painting after the spans were in position. Concrete was also placed in the decks at each end of each span, and between the end stiffeners outside each span. This work was done by railway forces at the concentration point, after which the end deck and curb plates were welded on, the asphalt applied to the decks, the ballast and sleepers were laid, and the spans were painted. Preparation on the bridge sites, which had to be made under traffic, consisted in the lowering of abutments to accommodate the deeper main girders, and the renewal of girder seats that had deteriorated; generally, this was done by renewing the first course of masonry below the seat with concrete construction. The span concerned was supported meantime with timber falsework, and an ingenious method, in which old rails were used, was devised for supporting the tracks immediately adjacent to each span while the abutment backwalls were rebuilt.

The work of installation was carefully programmed so that the minimum disturbance to traffic might be caused. Each of the 13 bridges over public roads required the placing in position of four single-track spans. At each bridge the most southerly track (the eastbound passenger) was tackled first, and possession was required of the next adjacent track at the same time for the use of the cranes; the overhead electric power was cut off from both these lines while the work was in progress. Rails and sleepers were removed, and short lengths of temporary rail were laid to enable the cranes to move up to the bridge from each side. The anchor bolts of the old span were cut off with oxy-acetylene torches, and the cross-girders were cut through close to the inside girder; this made it possible to lift the outside girder and the cross-girders as one unit, and to deposit these on a flat wagon on an adjoining track. The new spans had been brought up also on flat wagons (the overall width of 11 ft. 11 in. could be moved on rail without infringement of clearances), and two 150-ton locomotive cranes then lifted the first of these, with the help of the holes in the extended girder end-plates, and set it approximately in position. Because of the greater width of the old spans, however, each new span had to be set temporarily 6 in. off its final location, and jacked over to its final position when the last of the four spans had been set. The final operations were those of fixing the anchor bolts in position, concreting round them, and laying the rails across the span. Through frequent repetition of the same procedure, the installation forces grew so proficient that it became almost a rule to spend no more than an hour from the time that removal of the rails and sleepers began at any one span to the time that the new span was in position. Due to delay in delivery of the spans, however, it was about ten months before the entire series of renewals was completed. The two bridges over creeks were of different design; here precast slabs were used to bridge openings of 37 ft. 3 in. in both cases. These slabs consisted of rolled-steel beams encased in concrete, two slabs to each track, and with outside curbs for holding the ballast. Each slab was provided at the end with four lifting loops of 1¾ in. dia. steel rod, in its top surface, to permit of lifting with cranes, and of a method of installation closely resembling that which was followed with the bridges over roadways.

Proportions of Locomotive Boilers—I

The grate area is the most important feature and tubes and flues are given special consideration

By E. C. Poultney

DURING recent years a great deal of attention has been given to the construction and proportions of locomotive boilers, and there can be little doubt that designers, aided by the experimental data now available, have met with considerable success in producing boilers of high capacity with reasonably good efficiency over a fair range of working. Even so, it is generally recognised there is still much room for improvement, and as J. T. Anthony has so aptly remarked "There yet remains the difficult task of designing a locomotive boiler that will meet the combined requirements of high capacity, high efficiency, simplicity of construction, and low maintenance costs."*

It is not the writer's intention to attempt a solution of this problem. The object of this article is to present a general discussion on the proportions of locomotive boilers of the normal type, using coal as fuel, and in particular, to direct attention to the significance of the design factors employed to express the relationship between the component parts which comprise the locomotive boiler, and to consider the effect of changes in the ratios of proportions on its working. The subject is a wide one and within the limits imposed by an article of this kind can be presented only in the form of a general sketch. The specific points on which the writer's opinions are based are summarised as follow :—

(*a*) Boiler proportions.
(*b*) The firebox (thermic syphons).
(*c*) Rating.

General Proportions

To aid in a study of boiler proportions a statement, Table I, has been prepared setting out the principal dimensions of a number of examples which it is considered are of modern design ; a few words by way of explanation are necessary. It will be noted that in all cases the type of locomotive is given ; this, together with the diameter of driving wheels indicates the class of service for which each is intended. Then follows the rated tractive force estimated on the basis of a mean pressure equal to 85 per cent. of the boiler working steam pressure, particulars of which are included. The smallest diameter of the boilers is given because of its relationship to the possible gas passage area through the tubes and flues. The proportions calculated comprise all the important design ratios, and it will be noted that of the nine items given, seven include the grate area, which is considered to be a microcosm of the entire boiler. One ratio has been omitted ; this is the ratio of length to bore of the tubes. Full particulars of the tubes and flues including the length between or over the tube plates are included, however, which in itself gives an indication of this relation. Further, it is intended to deal with this important ratio in detail.

Some objection may be levelled against the ratio R.T.F./G.A. on the grounds that this value is frequently dictated by the quality of the fuel used, and this is undoubtedly true. Even so, it is an important factor when comparing boilers using closely similar fuels, and judged from this angle is of value when considering firebox and grate proportions, as it has a considerable bearing on boiler efficiency which will be noted later.

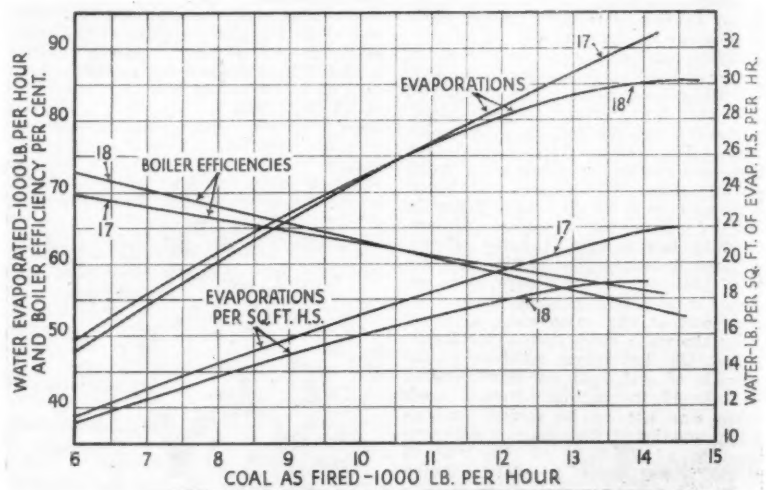


Fig. 1—Comparative boiler performance characteristics

Firebox Proportions

When considering firebox proportions the important points to be considered are first and foremost the grate area, and the relationship between this dimension and

* "Locomotive Boiler Efficiency," J. T. Anthony, *The Railway Mechanical Engineer*, September, 1916

TABLE I—DIMENSIONS AND PROPORTIONS OF

1. Railway	L.M.S.R.	L.M.S.R.	L.M.S.R.	L.N.E.R.	L.N.E.R.	L.N.E.R.	L.N.E.R.	G.W.R.	G.W.R.
2. Type	4-6-2	4-6-2	4-6-0	2-8-2	4-6-2	4-6-2	4-4-2	4-6-0	4-6-0
3. Diameter of coupled wheels, in.	81	78	72	74	80	80	82	78	80½
4. Rated tractive force (R.T.F.)	40,000	40,300	25,455	43,462	35,455	32,909	19,300	40,300	31,625
5. Working steam pressure, lb. per sq. in.	250	250	225	220	250	220	175	250	225
6. Boiler diameter, outside, front, in.	68⅜	68⅜	59 11/16	69 7/16	69⅜	69 7/16	66	66½	61 11/16
7. Tubes and flues, length between tube plts., ft. in.	19 3	19 3	13 2⅝	18 11⅜	17 11⅜	18 11⅜	16 2⅜	16 5⅜	15 2 11/16
8. Tubes, No. and diameter outs., in.	129—2⅜	112—2½	159—1⅞	121—2¼	121—2¼	121—2½	90—2	171—2¼	197—2
9. Flues, No. and diameter outs., in.	40—5⅛	32—5⅛	24—5½	43—5¼	43—5¼	43—5½	24—5¼	16—5⅝	14—5⅛
Heating surfaces, sq. ft.—									
10. Firebox	230·5	217	171·3	237	231·2	215	185	193·5	162·7
11. Arch tubes	—	—	—	—	—	—	—	—	—
12. Syphons	—	—	—	—	—	—	—	—	—
13. Total (F.B.H.S.)	230·5	217	171·3	237	231·2	215	185	193·5	162·7
14. Tubes and flues (T.F.H.S.)	2,577·0	2,097	1,460·0	2,477	2,345·1	2,476·8	1,298·4	2,007·5	1,857·68
15. Total (Evap. H.S.)	2,807·5	2,134	1,631·3	2,714	2,576·3	2,691·8	1,483·4	2,201·0	2,020·38
16. Superheater (S.H.S.)	856·0	623	307·0	776·5	748·9	635·5	392	313·0	262·62
17. Total (Comb. H.S.)	3,663·5	2,937	1,938·3	3,490·5	3,325·2	3,327·3	1,875·4	2,514·0	2,283·0
18. Grate area, sq. ft. (G.A.)	50·0	45	28·65	50	41·25	41·25	27	34·3	29·36
19. Firebox volume, cu. ft. (F.B.V.)	315·47	261	172	296·8	274·0	252	195*	206·22	168·4
20. Free gas area through boiler, sq. ft. (F.G.A.)	6·89	5·35	4·48	6·46	6·46	6·46	3·72*	4·47†	4·11†
Proportions—									
21. R.T.F./G.A.	800	895	888	869	858	796	717	1,210	1,076
22. F.B.H.S./G.A.	4·6	4·8	5·96	4·73	5·6	5·2	6·85	5·62	5·54
23. F.B.V./G.A.	6·3	5·8	6·0	5·93	6·63	6·1	7·2	6·07	5·75
24. F.G.A./G.A. × 100	13·7	11·9	15·6	12·9	15·6	15·6	13·75	13·1	13·95
25. T.F.H.S./F.B.H.S.	11·15	9·64	8·53	10·41	10·13	11·5	7·02	10·7	11·4
26. Evap. H.S./G.A.	56·2	51·3	56·8	54·2	62·3	65·2	55·0	58·4	68·8
27. S.H.S./G.A.	17·05	13·9	10·7	15·5	18·1	15·35	14·5	9·13	8·6
28. S.H.S./Comb. H.S. × 100	23·15	21·2	15·85	22·2	22·4	19·05	20·08	12·45	11·45
29. Comb. H.S./G.A.	73·4	65·2	67·7	69·9	80·6	80·8	69·5	73·3	78·0
Superheater type	A	A	A	A	A	A	A	A	A
Feed water heater	Exh. inj.	Exh. inj.	Exh. inj.	Exh. inj.	Exh. inj.	Exh. inj.	Exh. inj.	—	—
	1	2	3	4	5	6	7	8	9

* Estimated

† Area at firebox tube plate

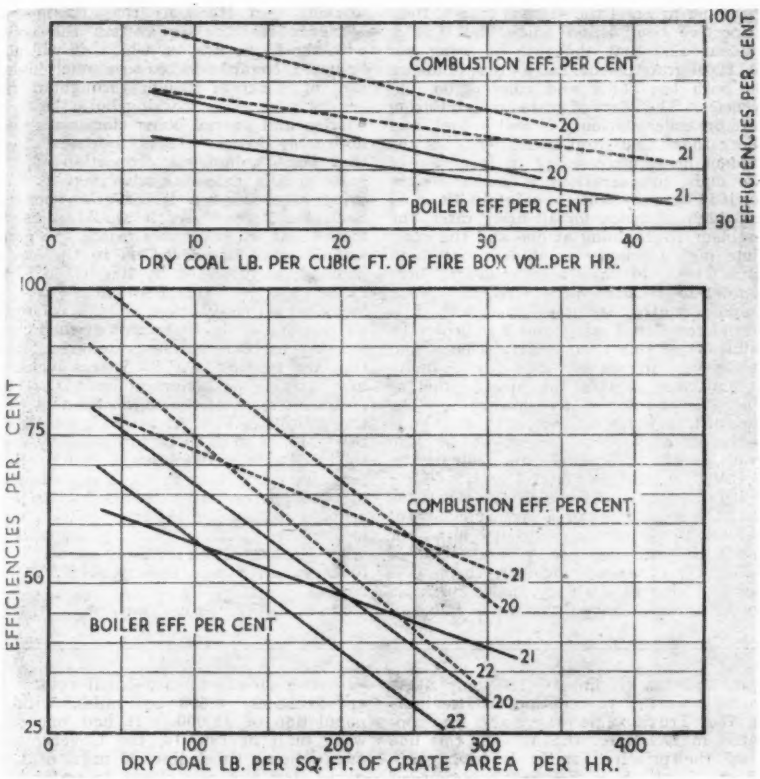

COMBUSTION EFF. PER CENT
BOILER EFF. PER CENT
EFFICIENCIES PER CENT
DRY COAL LB. PER CUBIC FT. OF FIRE BOX VOL. PER HR.
DRY COAL LB. PER SQ. FT. OF GRATE AREA PER HR.
20
21
22

Fig. 2—Comparative boiler and combustion efficiencies

the firebox heating surfaces and volume. Experimental test data lead to the conclusion that boiler efficiency is practically entirely governed by combustion efficiency—the relation between the fuel fired and that actually burned. In the proportioning of firebox dimensions and the area of the grate depends the efficiency of the firebox. It is unnecessary to stress the importance of firebox heating surface, as it is well known that per unit of area the evaporative power of the firebox heating surfaces is far greater than that of the tubes and flues. That this is recognised is clearly evident from the table of proportions, where it will be noted from the ratio F.T.H.S./F.B.H.S. a small value for which indicates a large firebox heating surface relative to that contributed by the tubular heating surfaces. The unit evaporative value of the firebox heating surface is governed by the size of the grate relative to the heating surface, and the value of this ratio for different boilers is given by the factor F.B.H.S./G.A. For any firebox the evaporation per sq. ft. of heating surface increases with a decrease in the value of this factor. Conversely, the larger the value the less the evaporative power of the heating surface per sq. ft. The ratio F.B.H.S./G.A. is of further significance because it indicates not only the unit evaporative power of the heating surface, but also the size and volume of the firebox relative to the grate area. This is not a direct relationship, however, as the enclosed volume for any given firebox heating surface depends on the shape of the box. Both heating surface and volume in relation to the grate seem to have an important bearing on firebox efficiency. The table of dimensions gives this relation which is seen to vary within quite wide limits. To illustrate the effect of the size of the firebox on boiler and combustion efficiency, graphs Figs. 1 and 2 are presented; the former shows the performance of two boilers identical in nearly all respects except in the design and size of the fireboxes. The boilers compared are Nos. 17 and 18; the former has a larger firebox by reason of the fact that it has a combustion chamber, and as a result, shorter tubes. The effect of this change is interesting. It will be noted that at the lower rates of firing its efficiency is lower, reflected in less evaporation, though on account of the fact that for practically equal grate areas the evaporative heating surface is less, that is, the value of Evap.H.S./G.A. is lower, the unit evaporation per sq. ft. of heating surface is greater. Beyond a firing rate of about 10,250 lb. of coal per hour the firebox with the larger volume shows to advantage, and gives a greater boiler efficiency and evaporation which is shown to reach a maximum of 92,000 lb. of water per hr., with an efficiency, boiler and superheater, of 55 per cent. comparing with about 85,500 lb. and 52·6 per cent. efficiency.

To enable a more detailed examination of the effect of firebox volume on boiler performance and combustion efficiency Fig. 2 compares, in the lower section of the panel boilers 20, 21, and 22, when boiler and combustion efficiencies are plotted against the firing rate of dry coal per sq. ft. of grate area per hr., and in the upper section the performance of boilers 20 and 21 is examined

MODERN LOCOMOTIVE BOILERS

G.W.R.	S.R.	S.R.	I.S.R.	I.S.R.	B.N.R.	S.A.R.	N.Y.C.	N.Y.C.	N.Y.C.	P.RR.	P.RR.	P.RR.	N.S.W.
2-8-0	4-6-2	4-6-0	4-6-2	2-8-2	4-6-0	4-8-2	4-6-4	4-6-4	4-8-2	4-6-2	4-8-2	2-10-0	4-8-2
68	74	79	74	61½	73½	63	79	79	69	80	72	62	60
30,460	37,500	25,320	30,625	48,086	27,787	49,200	43,440	42,360	60,100	44,460	64,550	90,024	56,000
225	280	200	180	210	200	225	275	225	250	205	250	250	200
66	69⅜	61⅜		80½	65½	75⅜	80⅜‡	82 7/16‡	82 7/16‡	76⅜‡	82½‡	82‡	73½
15 2½	17 0	14 2	18 6	18 6	13 6	22 6	19 0§	20 6§	20 6§	19 0	19 0	19 0	20 0½
218—2	124—2½	167—2	129—2½	163—2½	133—2	136—2½	59—2½	37—2½	50—2½	237—2½	120—2½	114—2½	165—2½
16—5⅛	40—5½	24—5½	30—5½	36—5½	25 5½	36—5½	183—3½	201—3½	198—3½	40—5½	170—3½	200—3½	40—5½
169·75	220	162·0	207	260	—	209·3	323	244	338	277·8	370	258	259
—	—	—	22	26	—	26·2	37	37	35	29·0	29	29	37
—	55	—	—	—	—	—	—	—	—	—	—	—	—
169·75	275	162·0	229	286	231·6	235·5	360	281	373	306·8	399	287	296
2,062·35	2,175·9	1,716·0	2,200	2,728	1,398·4	3,179·0	3,827	4,203	4,303	3,734·4	4,303	4,512	3,094
2,232·10	2,450·9	1,878·0	2,429	3,014	1,600·0	3,414·5	4,187	4,484	4,676	4,041·2	4,702	4,799	3,390
289·60	822·0	337·0	636	763	317·0	661	1,745	1,951	2,082	940·0	1,630	1,940	773
2,521·70	3,272·9	2,215·0	3,065	3,777	1,917·0	4,075·5	5,932	6,435	6,758	4,981·2	6,332	6,739	4,163
30·28	48·5	30·0	51	60	38·0	62·5	82	81·5	75·3	69·9	69·9	69·9	65
181·6	300	180	283	372	203	—	519	428	538	427	494	364	—
4·57†	6·26†	5·03	5·78	7·14	4·36	7·21	8·91	9·67	9·33	9·10	9·71	9·13	8·73 (approx.)
1,001	774	842	602	801	731	771	530	520	820	636	924	1,285	862
5·6	5·66	5·4	4·48	4·77	5·34	3·86	4·38	3·44	4·95	4·4	5·71	4·15	4·55
6·0	6·19	6·0	5·55	6·2	5·34	—	6·32	5·25	7·15	6·1	7·07	5·22	—
15·05	12·9	16·7	11·32	11·9	11·45	11·6	10·86	11·85	12·35	13	13·9	13·1	13·42
12·3	7·9	10·56	9·61	9·55	6·84	13·5	10·61	14·95	11·46	12·15	10·78	15·19	10·42
76·0	50·5	62·5	47·7	50·2	42·2	54·5	51·0	55·0	62·0	57·7	67·3	68·7	52·25
9·55	16·9	11·2	12·45	12·7	8·56	10·55	21·2	24·0	27·6	13·45	23·3	28·8	11·87
11·50	25·2	15·4	20·62	20·2	16·52	16·22	29·4	30·2	30·8	18·90	25·7	28·8	18·55
83·2	67·5	74·3	60·2	62·8	51·75	65·2	72·2	78·9	89·6	71·3	90·5	91·4	64·0
A	A	A	A	A	A	A	E	E	E	A	E	E	A
—	Exh. Inj.	Exh. Inj.	—	—	Exh. Inj.	—	F.W.H.	F.W.H.	F.W.H.	—	F.W.H.	F.W.H.	—
10	11	12	13	14	15	16	17	18	19	20	21	22	23

‡ Diameter inside § Length over tube plates

by plotting the efficiencies against the rate of firing dry coal per cu. ft. of firebox volume. The three boilers 20, 21, and 22, have equal grate areas; the factors F.B.V./G.A. are respectively 6·1, 7·07 and 5·22. Fireboxes 20 and 21 are properly comparable, but as 22 was fired with a different quality of fuel the comparison is not so good. The difference between 20 and 21 is very evident, and indicates clearly the effect of the firing rate on efficiency. It was pointed out when considering Fig. 1 that the boiler with the smaller firebox in relation to the grate was the more efficient of the two at the lower rates of firing. In other words, the larger firebox, having in this case about 20 per cent. more volume per sq. ft. of grate, and hence for a given rate of firing the fuel fired per cu. ft. of volume would be 20 per cent. less, was nevertheless not so efficient. Further, as boiler efficiency is almost entirely controlled by the efficiency of the combustion process it seems true to say that a large volume in proportion to the grate does not necessarily mean improved combustion.

In Fig. 2 the effect of changes in firebox proportions is examined. The relative efficiencies of the three boilers concerned are similar to those compared by Fig. 1, for here again the fireboxes with the smaller F.B.V./G.A. factors are the more efficient at the lower rates of firing per sq. ft. of grate per hr., and the same is true of their respective combustion efficiencies. It is evident also that the rate of firing per sq. ft. of grate per hr. has a great influence on both the boiler and combustion efficiencies. The effect of grate area and firing rate on boiler efficiency is well known, and the rather rapid drop in efficiency as the rate of firing increases is, in fact, one of the main considerations in boiler design, for if it were possible to maintain an equal and high efficiency for all firing rates, the problem of obtaining at one and the same time high efficiency combined with high capacity would have been solved. There is a decided trend towards increasing firebox volume relative to grate area, and it is considered that Figs. 1 and 2 indicate the influence of this change on efficiency and capacity. In an attempt to evaluate volume, the plot in the upper panel of Fig. 2 is of interest, as showing how the rate of firing dry coal per cu. ft. of volume influences efficiency. For each firebox the grate areas are the same, but the F.B.V./G.A. factors are 6·1 and 7·07 for boilers 20 and 21 respectively; this means that for equal rates of firing per cu. ft. of volume 16 per cent. more coal is fired per sq. ft. of grate area per hr. in the case of boiler 21, compared with 20. From the point of view of efficiency, boiler 20 shows to advantage through the whole range of working, but it seems that its loss of efficiency is more rapid than the boiler with the larger firebox, which, it will also be noted, could be forced to a much higher rate of working, though throughout the greater part of its working both the combustion and overall boiler efficiencies were noticeably lower. It is, however, clear that large volume in proportion to the grate area is a definite advantage at high firing rates per sq. ft. of grate per hr. Such being the case, it would seem to follow that when for any reason the grate area is small in proportion to the steam demand, as indicated by the R.T.F./G.A. ratio, then the value F.B.V./G.A. can be increased with advantage, and it was largely on account of its significance when considering firebox volume grate area ratios that the factor R.T.F./G.A. was included in the table of boiler dimensions. This argument rests, of course, on the fact that the ratio R.T.F./G.A. is the measure of the ft.-lb. of work to be furnished by each sq. ft. of grate. It follows, therefore, that for equal qualities of fuel and rate of firing for the purpose of comparison, the percentage of the full rated tractive force that locomotives can develop at equal speeds in miles per hr. will be inversely proportional to the values of their respective R.T.F./G.A. factors.

(To be continued)

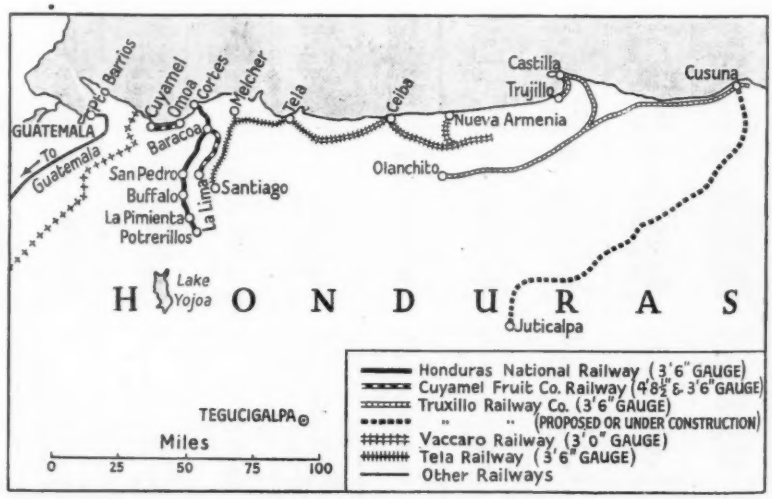
Railways of Honduras

HONDURAS is the second largest republic of Central America, with a superficial area of 44,480 sq. miles, and a population, at the 1934 census, of 962,685. Apart from the National line, most of the railways are industrial or plantation enterprises, which have assumed the proportions of public carriers. There are at present 1,481 km. (920 miles) of railway in the country, of which 1,377 km. (855 miles) are owned by the fruit companies. No major constructional development has taken place during recent years.

The original intention of the Government of Honduras was to build an interoceanic railway, and from 1850 attempts were made from time to time to raise the necessary capital. In 1867 a loan was raised in England, and the first 50 miles of the National Railway were constructed from Cortes inland. Later, and in successive periods, the line was leased to various syndicates, and other sections were completed, until 1912, when the Government assumed control of the line, to lease it, in 1920, to a subsidiary of the Cuyamel Fruit Company, of Delaware, U.S.A. The present railhead is at Potrerillos. The Cuyamel company owns and operates its own railway, built about 1903, from Cuyamel to Omoa. In addition it has some 75 miles of tramway-track (30 in.) plantation lines. This company also owns and operates the Ulua Branch, from Baracoa Junction, on the National Railway, to La Lima, with running powers to the port at Cortes.

The Standard Fruit & Steamship Company Railway, known as the Vaccaro Line, was built by the Vaccaro Brothers of New Orleans, in 1905. The company owns a dock at the port of Ceiba, the terminal of the railway, and also controls a line of steamers running from there to the United States. The Tela Railway is another fruit-carrying railway. The company was incorporated in Delaware, U.S.A., in 1912, and the railway extends both eastward and westward from the port of Tela, with a large number of spur and branch lines. The only other railway worthy of mention in Honduras is the Truxillo Railway, also incorporated in Delaware, U.S.A. On this line also, the principal traffic is fruit; some 85 per cent. of the freight consists of bananas. The line, construction of which was begun in 1913, runs inland from Castilla to Cusuna, and is being continued towards Juticalpa, 100 miles farther inland. Subjoined is a list of the principal railways in Honduras:—

	Gauge	Mileage
Ferrocarril Nacional (owned by Government; operated by the Tela Railway Company)	3 ft. 6 in.	65
Vaccaro Line (Standard Fruit & Steamship Company)	3 ft.	284
Tela Railway	3 ft. 6 in.	290
Truxillo Railway	3 ft. 6 in.	172
Cuyamel Fruit Company's Railway (main line)	4 ft. 8½ in.	59
Cuyamel Fruit Company's Railway (Ulua Branch)	3 ft. 6in.	50
Total		920



The principal railways of Honduras carrying public traffic; the extensive lines in the plantations are not indicated

British Honduras is a small colony of approximately 8,598 sq. miles, with a population of 45,000. It had one railway, built in 1907-14, the Government-owned Stann Creek line, 25 miles of 3 ft. gauge, but this was closed to traffic and the track converted into a highway during the period 1938-1940.

WARTIME FINISH OF MACHINERY AND PLANT.—The British Standards Institution has issued war emergency recommendations for the wartime finish of machinery and plant. The object of the recommendations is to eliminate unnecessary refinements and requirements as to finish in order to save man hours and material, and so to facilitate production. Copies of this specification (B.S. 1114) may be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1., price 1s. post free.

Transport at Royal Ordnance Factories

As much as 26 miles of line has been laid inside some of these factories

A train leaving one of the new stations which have been built to serve Royal Ordnance factories

THE Transportation Department of the Ministry of Supply is responsible for the transport arrangements at all Royal Ordnance Factories, and in meeting many diverse requirements it has had to overcome a wide range of complex problems. In the first place, the layout of the factories had to be planned to deal with the large movements of workpeople and the freight traffic involved. Special railway stations have been constructed, either adjoining or inside the factory site to permit of the very large numbers of workers being catered for within a limited period of time ; in some instances, special branch lines connecting the main railway and the factory have been constructed. At some of these factory stations as many as 44 special trains daily are dealt with and, to reduce the overall time the workers are away from home, signalling has been installed to allow of the timing of the arrival and departure of trains at intervals of from 3 to 5 minutes.

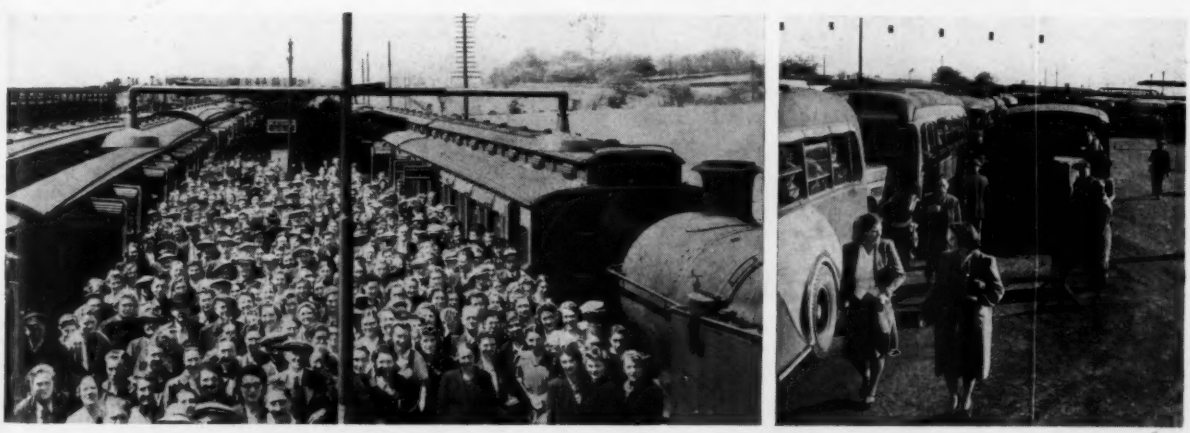
Train services are normally used for the conveyance of large numbers of workpeople from populated areas. There remain, however, many workers in scattered villages for whom no direct rail services are available ; they are catered for either by feeder bus services to the nearest railway station, or by direct bus services to the factory. The latter services have called for the provision of special bus parks, complete with loud speakers, indication boards, and so on, and as many as 100 vehicles may be accommodated in a single bus park at each change of shift. The areas from which labour should be supplied are defined to avoid wasteful transport as far as is possible. The area covered by certain of the factories is so extensive that the distance between the entrance gate or railway station, and the place of work may be much greater than reasonable walking distance. Internal bus services are provided by specially designed vehicles, and as many as 20,000 workers are carried daily by this means at a single factory. Some details of these buses were given in our September 5, 1941, issue. Transport facilities have also to be provided for workpeople and families living in hostels and married quarters, to convey them to and from the nearest town for shopping, entertainment, and schooling. Most of the large factories are operated on the basis of three shifts daily, timed so as to avoid the peak periods of public travel, and also to permit of trains and buses being used for both the incoming and the outgoing shift.

On the freight side, junctions and exchange sidings have been provided in full co-operation with the railway companies. The internal layout of the factories in many cases has necessitated the provision of extensive sorting sidings, as well as running lines ; as much as 26 miles of track has been laid inside some of the factories.

Inwards freight traffic is controlled by means of a distribution programme drawn up months ahead in accordance with the production requirements of the factory. Wagons are taken over from the railway company at the reception sidings and worked by factory locomotives of steam, oil-fired, and diesel types, to the point of discharge, of which there may be over 100 in a single factory. If, due to circumstances beyond control, traffic arrives in excess of immediate ability to handle at the production points, wagons are diverted to factory reserve stores and discharged at once, to avoid detention of rolling stock. After discharge, the wagons are re-positioned for outwards loading and for despatch of the finished product to Army Ordnance Depots or other destinations.

The factories have large fleets of motor-cars and lorries. The cars are mostly of small horse-power and the lorries vary from load carriers of 15-ton capacity to mechanical horses, explosives vans, acid tanks, specially fitted canteen vans, tractors, ambulances, fire engines, and snow-ploughs.

The immediate responsibility for all transport arrangements at Royal Ordnance Factories rests on Factory Transportation Officers, under the direction of the Controller of Factory Transportation of the Transportation Department in London.



Left : Workers arriving by train at a halt which serves a Royal Ordnance Factory. Right : A corner of one of the bus parking places which have been provided at many of the factories

Photos] [*Time & Life Ltd.*

American Ambulance Trains

The interior of a hospital train with wounded from the Middle East and Africa. Numbers of these trains have been equipped in Great Britain from passenger trains and are being used by the American armies (*See last week's issue, page* 366)

One of the American-built 2-8-0 *"austerity" locomotives hauling a hospital train in England*

RAILWAY NEWS SECTION

PERSONAL

The Minister of Aircraft Production has appointed the following to be Directors of Short Bros. (Rochester & Bedford) Ltd.: Lord Ashfield (Chairman, London Passenger Transport Board); Mr. W. Bramham (Director & General Manager, Eastern Coach Works Limited); Sir Nigel Campbell (Deputy-Chairman, Stewarts and Lloyds Limited, and a Director of Baldwins Limited); Mr. P. G. Stone Clark (a Director of ten companies in the Tilling Group); and Mr. A. J. Romer (General Manager, Manufacturing Section, Bristol Tramways & Carriage Co. Ltd.). Sir Frederick Heaton, whose appointment to that position was recorded in our February 12 issue, remains Chairman.

(*See editorial note, page* 374)

Mr. E. M. Fraser, Director-General of Equipment Production, Ministry of Aircraft Production, has been appointed Director-General of Aircraft Production. Mr. Fraser, who was South Eastern Divisional Manager, Imperial Chemical Industries Limited, placed his services at the disposal of the Government shortly before the outbreak of war; his appointment as Director-General of Equipment Production was recorded in our August 14, 1942, issue.

The King, on March 25, at Buckingham Palace, conferred the honour of Knighthood upon Mr. William Patrick Spens, O.B.E., K.C., on taking up his appointment as Chief Justice of India. Sir William Patrick Spens was formerly M.P. for the Ashford Division of Kent, and is a Director of the Southern Railway Company.

The Rt. Hon. Lord Brabazon, M.C., is President-elect of the British Electrical Development Association.

The Ministry of Production announces the appointment of Mr. Arthur Newhall as Executive Director of the Combined Production & Resources Board. He will supervise and control the work of the board's combined staff, and exercise general direction over the work of the various committees which make special studies and reports.

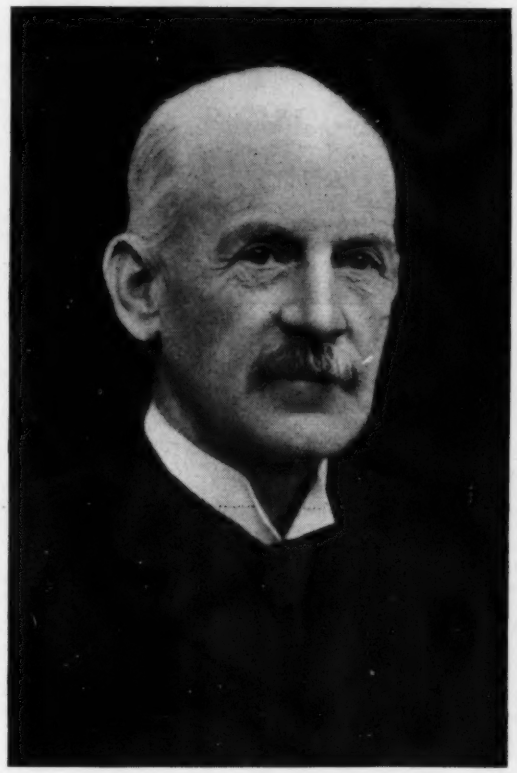
Canadian National Railways

Mr. R. J. S. Weatherston, General Freight & Passenger Agent, Atlantic Region, Canadian National Railways, has retired after 50 years' service. In view of the greatly-increased traffic in this region under war conditions, it has been considered desirable to separate the freight and passenger organisations, and the following appointments have been announced:—

Mr. J. H. Norton, Assistant General Freight Agent, Moncton, to be General Freight Agent, Atlantic Region, with headquarters at Moncton.

Mr. F. L. Dougan, District Passenger Agent, Halifax, to be General Passenger Agent, Atlantic Region, with headquarters at Moncton.

Sir H. L. Watkin Williams-Wynn, Bt., C.B., who, as announced at the recent meeting of the Great Western Railway Company, has resigned his Directorship, joined the board of that company in 1885, in succession to his uncle, the late Sir Watkin Williams-Wynn, Bt., M.P., from whom he inherited the baronetcy. At that time the owner of Wynnstay had the right to appoint a director to the Great Western board; this right originated in 1845, when



Sir Watkin Williams-Wynn

Director, Great Western Railway Company, 1885-1943

it was granted in connection with the North Wales Mineral Railway under the North Wales Mineral Railway Act of that year. That railway later was merged in the Shrewsbury & Chester Railway, which in its turn became part of the Great Western system. The Wynnstay right of appointment was abolished by the passing of the Railways Act of 1921. At the time of his appointment, Sir Watkin Williams-Wynn was 25 years of age; and he has been a member of the board for nearly 58 years. During the late Sir Watkin Williams-Wynn's lifetime, about 1870, gold was found on the Wynnstay estate, and some of the gold passes held by the company's directors were made from this metal—including the pass which Sir Watkin now holds and which was held previously by his uncle. Sir Watkin has been Lord-Lieutenant of Montgomeryshire since 1891. He was M.P. for Denbighshire in 1885, and High Sheriff in 1890; and at one time he commanded the Montgomeryshire Yeomanry Cavalry.

Colonel Eric Gore-Browne, D.S.O., who is Chairman of Glyn, Mills & Company, and Deputy-Chairman of the Southern Railway Company, has been elected an Extraordinary Director of the Royal Bank of Scotland.

Under authority of a Royal Warrant, the Viceroy of India, at New Delhi on February 23, conferred the honour of knighthood on Mr. Robert Ecklin Marriott, General Manager, East Indian Railway; Mr. Arthur Cecil Griffin, O.B.E., General Manager, North Western Railway; and Mr. James Rennie Izat, V.D., Agent & General Manager, Bengal & North Western and Rohilkund & Kumaon Railways. His Majesty's approval of these knighthoods was signified on January 1, 1943.

Mr. R. P. Beddow has been appointed a Director of the Birmingham & Midland Motor Omnibus Co. Ltd. in place of Brigadier B. G. White, who has resigned.

At the annual general meeting of the Mansion House Association on Transport on March 17, Mr. W. H. Gaunt was re-elected President of the association.

Señor Eduardo M. Huergo, Deputy Administrator-General, and a member of the Council of Administration, Argentine State Railways, has been appointed Administrator-General, in succession to the late Señor Pablo Nogués, whose death was recorded in our January 29 issue.

The King has awarded the British Empire Medal (Civil Division) to Mr. Ernest George Chandler, Passenger Guard, London Midland & Scottish Railway Company, for his promptitude, coolness of mind, and disregard of danger, in risking his life to save a passenger who in the darkness had stepped out of a train on the side away from the platform.

We regret to record the death on March 31, at the age of 70, of Sir Horace Boot, M.Inst.C.E., M.I.Mech.E., M.I.E.E., who was Chairman of the Barrington Light Railway Company.

We regret to record the death on December 19, 1942, in his 84th year, of Mr. C. J. Cooke, a former Assistant Telegraph Superintendent of the Great Northern Railway. He was joint inventor, with Mr. W. R. Sykes and Mr. A. H. Johnson, of the flange-type insulated rail-joint for track circuits, extensively used at one time. From 1920 to 1928 he was a Member of Council of the Institution of Railway Signal Engineers.

Mr. J. J. Kelly retired on March 31 from Siemens Electric Lamps & Supplies Limited, with which he had been a traction lighting specialist for nearly 30 years. He served an apprenticeship with the Great Northern Railway (Ireland), and later went to the Great Northern & City Railway. He then joined his present

XUM

company. His early work was largely in connection with the conversion of lighting in railway vehicles from carbon-filament lamps to, first, Tantalum lamps, and, later, tungsten-filament lamps, developed by his company for use on rolling stock.

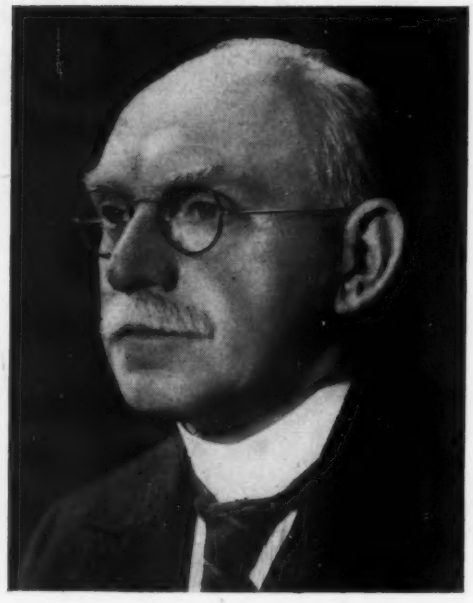
The Port of London Authority has re-elected the Rt. Hon. Thomas Wiles and Mr. Louis Hamilton Bolton to be Chairman and Vice-Chairman, respectively, for the three years to April, 1946.

Mr. P. E. Bent, Chief Goods Show Representative, Southern Area, L.N.E.R., retired on March 31. He had been in the service for over 50 years, having joined the Great Northern Railway in 1892. Since the outbreak of hostilities he has acted as Assistant Chief Outdoor Representative in the London City Manager's department. On Mr. Bent's retirement, at a gathering of his colleagues presided over by Mr. L. H. K. Neil (London City Manager), supported by Mr. A. G. Croxall (Assistant City Manager) and Mr. R. T. Phillips (Chief Outdoor Representative), Mr. Neil presented him with a cheque, together with an autograph album.

Mr. G. T. Hedge, O.B.E., whose death we recorded last week, held the position of Outdoor Commercial Manager, Southern Railway, from 1923 until his retirement in 1930. Mr. Hedge commenced his career with Pickfords Limited, in 1880, and entered the service of the former London & North Western Railway a year later. In his earlier career Mr. Hedge worked in all departments—delivery, shipping, correspondence, outside working—thus obtaining a thorough and practical knowledge of railway operation. In 1906 he was appointed Agent at Broad Street Goods Station under the London Traffic Superintendent. In 1912 Mr. Hedge became Outdoor Goods Manager, London & South Western Railway; and in 1923 Outdoor Commercial Manager, Southern Railway.

The late Mr. G. T. Hedge

Outdoor Commercial Manager, Southern Railway, 1923-30



Mr. H. J. Comber

Appointed Chief Officer for Labour & Establishment, L.M.S.R.

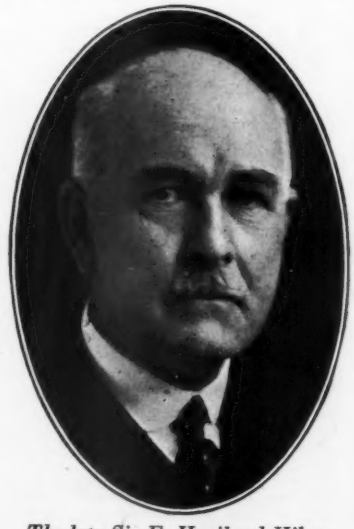
Mr. H. J. Comber, General Assistant to the Chief Officer for Labour & Establishment, L.M.S.R., who, as recorded in our last week's issue, has been appointed Chief Officer for Labour & Establishment, commenced his service with the former London & North Western Railway in 1903. After several years' station experience he was transferred to the Superintendent's Office of the Southern Division, and was promoted to the General Manager's Office a few years later. Mr. Comber brings to the principal position a long and intimate experience of staff negotiations, beginning with the arbitration awards of 1909 and the subsequent introduction of conciliation machinery in 1911. Since then he has been prominently associated with the individual company, and later the national, negotiations affecting salaries, wages, and conditions of service. He has been closely concerned also with the various wartime problems connected with manpower on the railways.

The control of graphite is to be exercised by Mr. C. J. Brockbank, Controller of Abrasives, Ministry of Supply.

Mr. J. H. Condy, Assistant Chief Engineer (Civil), London Passenger Transport Board, has resigned that position to take up an appointment as Deputy Works Director & Chief Engineer of the Bell Punch Co. Ltd. and associated companies.

Mr. Thomas E. Prior, Chief Clerk to the London Divisional Superintendent, G.W.R., retired from the company's service on March 30. He commenced his railway career in the Marine Department in 1900, and in 1905 was transferred to the General Manager's Office, where he remained for 16 years. In 1921 Mr. Prior was promoted Chief Clerk to the London Divisional Superintendent, which position he has held for 22 years. During the war of 1914-19, he served with the Royal Engineers, attaining the rank of Captain.

We regret to record the death on March 30, at the age of 72, of Sir E. Haviland Hiley, K.B.E., who had been Chairman of Traffic Commissioners, Eastern Area, since 1931. He entered the service of the N.E.R., and took up Railway. in the Accountant's Department, Newcastle-on-Tyne, in 1891; three years later he was transferred to the office of the Superintendent of the Line at York. After filling various positions in the Traffic Department, including that of Publicity Officer, he was appointed Assistant District Superintendent, Newcastle, in 1902. Two years later he became District Superintendent, York, but, at the end of the same year, he left the service of the N.E.R., and took up the appointment of Passenger Manager, London, of the Great Northern Railway on January 1, 1905. He returned to the North Eastern Railway in 1908 as District Goods & Docks Manager, Hull; and a year later he became Divisional Goods Manager, Southern Division, but remained in charge of the Hull District and Docks. In 1911 he was appointed Divisional Goods Manager, Northern Division. In 1913 he was appointed by the New Zealand Government to reorganise and manage its system, and he remained General Manager of the New Zealand Government Railways until 1919. In the next year he became a member of the committee set up by the Indian Government to report on the administration of the Indian railways; and in 1921-23 he was a member of the Royal Commission on Local Government of Greater London. In 1925 he was appointed to investigate, on behalf of the Beit Railway Trustees, the transport facilities in Rhodesia, and in 1927-28 he was Chairman of the Rhodesian Railway Commission. He received a knighthood in the King's Birthday Honours List in 1928; and three years later he was appointed Chairman of Traffic Commissioners, Eastern Area, the position which he held at the time of his death.



The late Sir E. Haviland Hiley

Chairman of Traffic Commissioners ,Eastern Area, 1931-43

TRANSPORT SERVICES AND THE WAR—185

Reduced Blackout Period

The reduction of the blackout period will take effect on Sunday, May 2.

For the greater part of the year the blackout time extends from half an hour after sunset to half an hour before sunrise, but during the summer months from the day next after the first Saturday in May to the second Saturday in August, it is reduced to the period from one hour after sunset to one hour before sunrise in Scotland and the Counties of Northumberland, Durham, and Cumberland, and from three quarters of an hour after sunset to three quarters of an hour before sunrise in the rest of England and Wales.

This year, Double Summer Time, which began on Sunday last, April 4, was a month earlier than the period of reduced blackout, and the possibility of introducing the shorter blackout period simultaneously with Double Summer Time was considered. As, however, the main factor is the length of twilight, it has been decided that the date previously fixed is the earliest at which the reduced blackout period can be introduced without taking an undue risk.

Producer-Gas Plant

As a result of negotiations with the Ministry of War Transport which culminated some weeks ago, members of the Mobile Producer Gas Association are now permitted to manufacture and sell their plants to operators who hold a licence to purchase. This enables operators who are required by the Ministry of War Transport to equip their vehicles with producer-gas equipment, to exercise freedom of choice as to which type of plant they may desire to obtain. The range of plants offered by the members covers both large vehicles, and also those smaller in size than the Government Emergency Producer is designed to cover.

It may be recalled that details of a scheme for the manufacture on mass-production lines of enough producer-gas plants to enable 10,000 vehicles to be converted within nine months were given at a conference held by the Mobile Producer Gas Association at Caxton Hall, Westminster, on July 17 last. Shortage of raw-material and labour have been important factors in retarding the conversion of road motor vehicles to producer-gas operation.

The Mobile Producer Gas Association was formed in February, 1942. Its Chairman is Mr. J. W. Noel Jordan; Vice-Chairman Mr. E. R. Slattery; and its Honorary Secretary Mr. R. McEwen Young. The offices are at 120, Pall Mall, S.W.1, and 22, Union Road, Clapham, S.W.4. The accompanying table, for which we are indebted to the association, shows the products of its members.

Controlled Summer Travel to Arran

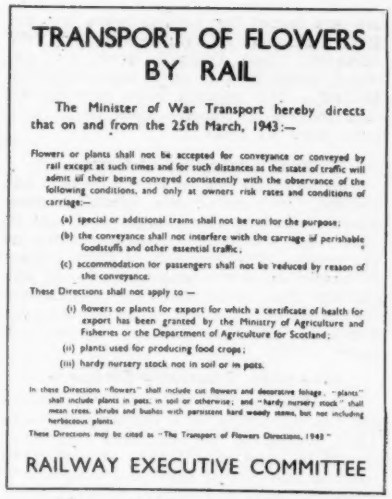
The L.M.S.R. has announced that passenger bookings to Arran will be controlled this year during the period from April 13 to October 5 inclusive. To facilitate the arrangements of passengers who must travel, tickets will be issued in advance at Glasgow (St. Enoch) Station on specified days, for travel on other specified dates. Tickets will also be issued as usual on the day of travel, provided the maximum number which can be issued for any particular service has not already been issued in advance. No tickets will be issued from any stations in Scotland excepting St. Enoch, Paisley Canal, and Fairlie Pier.

Certain restrictions on passenger bookings to other Clyde Coast places will be brought into operation at the beginning of June.

Coastal Area Restrictions

The ban on pleasure visits to certain coastal areas, which was suspended until April 1, was not restored on that date in the form in which it has applied previously. New regulations on access to coastal areas came into force on April 1, with a different system of restriction covering the whole of the East and South coasts from the Humber to Penzance to an approximate distance of 10 miles inland. Within that area access to particular places may be restricted or completely banned from time to time by the military authorities for military purposes, without prior notice. The coastal strip from Milford Haven along South Wales and round the Severn Estuary to Portishead, and (in Scotland) areas round the estuaries of the Forth, Tay, and Clyde are also regulated areas.

The ban on pleasure visits to Kent and Essex, between the Thames and Hastings, and also the Isle of Wight, remain unchanged.



TRANSPORT OF FLOWERS BY RAIL

The Minister of War Transport hereby directs that on and from the 25th March, 1943:—

Flowers or plants shall not be accepted for conveyance or conveyed by rail except at such times and for such distances as the state of traffic will admit of their being conveyed consistently with the observance of the following conditions, and only at owners risk rates and conditions of carriage:—

(a) special or additional trains shall not be run for the purpose;

(b) the conveyance shall not interfere with the carriage of perishable foodstuffs and other essential traffic;

(c) accommodation for passengers shall not be reduced by reason of the conveyance.

These Directions shall not apply to —

(i) flowers or plants for export for which a certificate of health for export has been granted by the Ministry of Agriculture and Fisheries or the Department of Agriculture for Scotland;

(ii) plants used for producing food crops;

(iii) hardy nursery stock not in soil or in pots.

In these Directions "flowers" shall include cut flowers and decorative foliage; "plants" shall include plants in pots, in soil or otherwise; and "hardy nursery stock" shall mean trees, shrubs and bushes with persistent hard woody stems, but not including herbaceous plants.

These Directions may be cited as "The Transport of Flowers Directions, 1943."

RAILWAY EXECUTIVE COMMITTEE

The new R.E.C. poster about flower conveyance

The general seasonal ban on pleasure visits to other parts of the East and South coasts is thus now lifted, but as they have become regulated areas, under the new arrangements, such restrictions as are imposed from time to time will not be indicated in advance, nor notified, excepting locally.

We refer to this matter in an editorial note, page 374.

Insurance of Motor Goods Vehicles

In December, 1942, insurers of motor goods vehicles agreed to continue and extend, without any general increase in rates, existing policies for motor goods vehicles while used within a group scheme, although the Emergency Powers (Road Vehicles and Drivers) Order, 1939, removed certain restrictions on "A," "B," and "C" licences under the Road & Rail Traffic Act, 1933. The same concession has been agreed to in respect of vehicles used for other purposes on a certificate by an officer of the Ministry of War Transport that such use is necessary (1) to deal with an emergency or (2) because there were no other vehicles available which were licensed and insured for haulage for reward. These certificates are issued by District Transport Officers and

PRODUCER-GAS PLANTS BUILT BY MEMBERS OF THE MOBILE PRODUCER GAS ASSOCIATION

	Type of plant	Goods type Model No. 5	P.S.V. types model Nos.	Approx. delivery date	Type of filter
British Gazogenes Limited, Portsmouth Road, Cobham, Surrey	Dry cross-draught	Models 2, 3, and 4 From 1½ to 6 litre engines No special trailer models	Models 2, 3, and 4 From 1½ to 6 litre engines No special trailer model	2-3 weeks	Dry fabric type with temperature control.
British Vehicle Producer Gas Limited, 169, Fulham Road, London, S.W.3	Dry cross-draught	Model "B" built-in, suitable 2/3 ton vehicles Model "C" built-in, suitable for 4/6 ton vehicles "H.D." "trailer model 2/6 ton vehicles Special sawdust-burning plant for all vehicles 30 cwt. to 5 tons	"H.D." trailer model Special sawdust burning plant	7-4 days	Dry sisal and B.V.P patent oil filter (dry or wet).
Enness-Sentinel Limited, 22, Union Road, Clapham, London, S.W.4	Dry cross-draught	"L" model for vehicles ¾ tons "E.H." model for vehicles 4/7 tons Both plants may be directly mounted, or may be supplied on trailers	"E.H." model on trailer Special models built for individual requirements	2-3 weeks	Dual wet and dry.
H.M.L. Limited, Edgware Road, Paddington, W.1	Dry cross-blast	Three sizes for engines developing 3, 6, and 8 litres and over Direct mounting on chassis frame behind driver's cab on two longitudinal members, or may be supplied on trailers	Three sizes for engines developing 3, 6, and 8 litres and over The plants may be mounted to trailers	7-14 days	Dry cylindrical quick-change cartridge type.
Valantine & Carr Limited, 35, Paradise Street, Sheffield, 1	Dry cross-draught	"B" Model for 2-tons vehicles "C" model for vehicles over 3 tons "Battery plant" for direct mounting uses a "C" model hopper	Single-action twin wheel trailer, model "C."	7 days from stock	Dual. Dry and wet.

are *not* issued for normal work for the Road Haulage Organisation of the Ministry; Civil Defence work; or use which could be put on a non-emergency footing. The insurers have now agreed that these arrangements shall be in force until June 30, 1943.

Rail Transport of Cattle

The Minister of War Transport has decided, in view of the special circumstances affecting the charges and sale of cattle, sheep, or pigs, to make permanent the temporary exemption of these classes of traffic from the requirements of the Carriage Paid Order made by the Minister on December 17, 1942, of which we gave details at page 17 of our issue of January 1 last.

Concrete Tramway Sleepers

The Liverpool Corporation Tramways are experimenting with concrete sleepers. The Government has suggested that these should be used on a length of new tram track in one part of Liverpool, and before doing so the City Engineer's department, which is responsible for tramways track maintenance, is putting a number into the enclosed track in Aigburth Road. Sleeper track is normally used on tramways on enclosed sections of suburban line only.

New Leningrad Railway

The Russians have built a new railway line to Leningrad just south of Lake Ladoga, according to a German radio report of March 16. The line is stated to run over a dam across marshland.

Western Desert Motive Power

It is reported from Cairo that L.M.S.R. locomotives are in use on the Egyptian section of the Western Desert Railway, as far west as Capuzzo. The section thence to Tobruk, all in Cirenaica, is maintained by American diesel locomotives, with British drivers and American maintenance crews.

Egyptian State Railways in 1942

According to the *Egyptian Gazette* of October 26 last, the latest statistics published to that date showed an increase of £E864,000 in receipts of the Egyptian State Railways during the period from May 1 to October 10, 1942. During that summer, 23,729,300 passengers travelled by rail, an increase of 3,360,000 over the same period of the preceding year.

Tours Railway Workshops Raid

Photographs taken since the raids during February by Mosquitoes of Bomber Command on the railway workshops at Tours, show that there was a direct hit on the main shop, and nearly 40,000 sq. ft. of the building has been damaged. According to the Air Ministry News Service, the greater part of two bays of the six-bay workshop has been destroyed, and 46,000 sq. ft. of the roof in a side-bay shop has been damaged by fire. Another building has had half of one of its two bays burned out, and a quarter of another has also been gutted. A neighbouring building has suffered in the same way; more than half of one of its two bays has gone and one-third of the other has been gutted by fire. Elsewhere, fires have badly damaged the roof of a workshop, another workshop and a connecting shed have been demolished, and a second shed damaged by blast. The railway junction, which is south of the main station, was also hit during the attack. Nearly one quarter of the locomotive running shed, or roundhouse, has been demolished by a direct hit, and the turntable was also hit. Two damaged locomotives had not been moved when the reconnaissance photographs were taken.

Hungarian Rail Travel Ban

Railway travel in Hungary, except for Service, professional, or business reasons, has been forbidden under a recent Decree, according to the Hungarian Radio. To avoid overcrowding hotels, travellers may not stay more than three days in one town.

War Production in South Africa

A single railway workshop in South Africa is turning out more than 100 different war items, from nuts and rifle clips to howitzer pivots machined out of 500-lb. blocks of metal. Armoured cars are made in large numbers at one depot. At another, troop-carrier and general service bodies are welded at the rate of 25 a day. Large aeroplane hangars are coming in sections out of railway buildings, and railway workers have made 100-ft. radio masts for military purposes. These details were included in a Reuters message from Cape Town, dated March 20.

The Nordland Railway

The Germans are reported to be making a great effort to expedite the completion of the Nordland Railway to Bodo. It is expected that a great part of the manpower which is to be conscripted under the new total mobilisation decree will be employed on this railway. The Nordland Railway, in northern Norway, was being built by the Norwegians at the time of the German invasion, and the first section was about to be opened. It is a standard-gauge line and extends from Grong, on the Namsos line, in the direction of Bodo. Under German auspices, it has been completed as far north as Mo, nearly up to the Arctic Circle. The sections open and under construction, respectively, were shown on the map at page 573 of our issue of December 11, 1942.

The Brazil-Bolivia Railway

Notwithstanding wartime difficulties, work on the construction of the line between Corumba and Santa Cruz de la Sierra has so far proceeded satisfactorily, according to a message received from our correspondent in Brazil after the publication of our notes of March 26, page 342. Rails had been laid up to Km. 120, some distance beyond El Carmen, by July last, and work was then proceeding on the section between Km. 120 and Km. 130 up to Santana. At that time it was hoped that the Tucavaca region would be crossed by November or December, as a stock of rails sufficient to complete laying up to Km. 170 was then in hand. Further progress depended upon the arrival of more rails from the U.S.A. This should not have retarded the preparation of earthworks and the bed of the line up to São José dos Chiquitos at Km. 400. Supplies of petrol and diesel-oil from the U.S.A. have also been precarious, but an arrangement has now been made whereby Bolivia will meet local requirements. Some 70,000 litres of petrol and 80,000 litres of diesel-oil will be supplied every month from the Bolivian wells at Camiri, and transported in drums to the railhead, whence the locomotives and wagons already in service will make further distribution. So far some 12 locomotives and 80 wagons are at work.

Relaxing U.S.A. Train Restrictions

It has already been found necessary to relax in some measure the drastic General Order ODT 24 of the Office of Defense Transportation in the United States, by which passenger train schedules were "frozen" as a war emergency, and the railways were forbidden, with certain narrowly-limited exceptions, to run any extra sections of train unless such trains had been operated on at least 20 per cent. of the days in the previous quarter. From December 12 an amending Order made it permissible to duplicate trains if weather conditions demanded this, for heating reasons, or if undivided trains would have otherwise been undesirably long for safe operation. The amendment also authorised the railways to utilise as additional sections of ordinary passenger trains the return workings of locomotives and stock that had been used for military movements. During the Christmas holidays, from December 12, 1942, to January 15, 1943, General Permit No. ODT 24-5 was issued, giving authority to the railways to run extra trains as required to accommodate Service personnel going on leave, and also to attach passenger cars to trains normally limited to mail and express traffic only.

Petrol Rationing in Canada

In Canada, as in the Eastern States of the U.S.A., the need for petrol rationing developed as the result of shipping difficulties rather than petrol shortages. Compulsory reduction of consumption was preceded by a Government-sponsored programme aimed at securing voluntary reductions in the use of petrol. Pooling of distribution facilities was arranged, and only two grades of petrol were placed on the domestic market. The installation of new petrol pumps and similar facilities was declared illegal; the hours of sale were restricted; and the use of credit cards abolished in favour of cash purchases. The rationing of sales of petrol for Canada's 1,600,000 motor vehicles and thousands of marine and stationary engines was put into effect on April 1, 1942. The Canadian system is basically similar to that used in the United States. It involves the use of coupons and the allocation of the coupons for each motorcar according to the occupation of the owner. The value of the petrol ration unit, originally set at 5 Imperial gallons (6 United States gallons) has undergone changes in different Provinces at different times, but on October 17, 1942, it was set at 3 Imperial gallons in all Provinces of Canada.

Rationing in the United States is based on the assumption that all cars get equal mileage from a gallon of petrol. In Canada, recognition is given to variations between different car sizes by dividing practically all known cars into three classes and allocating petrol on a horse-power basis. Such cars as the Ford, Chevrolet, and Plymouth are listed in Class 1; the Hudson, Oldsmobile, and Pontiac are in Class 2; and Class 3 includes the heaviest cars, and those having the greatest horsepower and highest petrol consumption per mile. Extra units of petrol are allowed the vehicles in Class 2 or 3, so that they may be driven approximately the same number of miles as those in Class 1. As much petrol as is needed, subject to official check on the amount used, is allowed drivers of motor lorries, buses, commercial motor-cycles, and tractors. Under present arrangements a taxicab is limited to 2,000 miles a month and is allowed approximately 4 gal. of petrol daily. A new petrol ration classification, known as the "Wartime Industrial Transit Category," came into force on November 3, 1942. Special coupon books are issued to (and used by) drivers of vehicles carrying workers to and from work in munitions plants under a wartime industrial transit plan authorised by, and operating under the supervision of, the Transit Controller.

RAILWAY AND OTHER MEETINGS

The British Automatic Co. Ltd.

The ordinary general meeting of the British Automatic Co. Ltd. was held at Winchester House, Old Broad Street, London, E.C.2, on March 31, Major R. D. K. Curling, M.C., Chairman and Managing Director of the company, presiding.

Mr. Ivan B. Lindley, Acting Secretary, having read the notice convening the meeting and the auditors' report,

The Chairman, in the course of his speech, said that early this year Captain Reginald Terrell had been co-opted to the board. Captain Terrell had had wide commercial experience and would be a most valuable addition to the board.

Stocks of sweetmeat stores were down by £142 to £48,338, and, but for the increase in price of cigarettes on account of additional duty, and the fact that the company now sold only the popular brands at 10 for 1s. through its machines, the value of stocks would have appeared at a much lower figure. Sales of chocolate and sweetmeats through the automatic machines had ceased on July 26, 1942, when the Ministry of Food had introduced the personal points rationing scheme. Fortunately, the company had been able to dispose of its quota of supplies through other channels, but at a very much reduced profit.

The company's investments in British Government securities showed a decrease of £6,052, due to the purchase of £15,000 of Savings Bonds and the sale of £20,000 Conversion Stock for the purpose of the redemption of part of the company's debenture stock. The market value of investments was £7,380 greater than the book value of £99,927. Tax Reserve Certificate, cash on deposit at banks and in hand together amounted to £91,657, which was £10,613 less than last year. During the year £60,610 of debenture stock had been redeemed and, but for this, the cash and investment position would have been greater by about £50,000. The reduction in debenture interest accrued was £1,661, but the charge for this item in the accounts for 1943 on the debenture stock outstanding, £139,750, would be £7,686 against £10,188 in the accounts under review. This meant that the debenture stock had been reduced by £110,250 and the interest payable had accordingly been reduced by over £6,000 a year.

Deferred maintenance of machines reserve had been increased to £15,000 by the addition of £10,000 for the year, less tax thereon, £5,000, as the company was still unable to obtain labour and materials to maintain machines at their pre-war standard.

The net profit, £41,656, was £4,633 greater than last year; £3,338 was due to an increase in the trading profit to £88,682, and the balance to a decrease in debenture interest, £1,441, less sundry increases and decreases in the other items of the profit and loss account. The balance of profit brought forward from 1941 was £4,040, and this, added to the profit for the year, made a total of £45,696, from which the directors had allocated £24,921 to depreciation and renewals account, leaving a balance of £20,774, and from this they recommended the payment of a dividend of 8 per cent. less income tax, which would absorb £16,000, leaving £4,774 to be carried forward.

The parent company—the Associated Automatic Machine Corporation Limited—which held over 98 per cent. of the ordinary share capital and would therefore receive that proportion of the dividend, would have to make provision out of the amount received for Excess Profits Tax which would probably absorb the bulk of the dividend which it would receive.

Although profits from the sale of sweetmeats were now very much reduced the net profit for the year had increased, mainly due to the very great reduction in expenses which had occurred during the year, and also to the fact that the company's chocolate manufacturing subsidiary—Reeves Limited—had continued to make steady progress. He was pleased to say that it was now manufacturing chocolate for supply to Cadburys, under the concentration scheme. He struck a warning note, however, regarding the prospects for 1943, as profits from the sale of cigarettes and sweetmeats during the second half of 1942 were considerably reduced, and he saw no prospect of any increase taking place this year.

Weighing machine receipts were being well maintained, and the company was doing everything in its power to keep the machines attractive and in good working order, despite the difficulties of shortage of staff and problems of supply. In consequence of a Ministerial order, the company was unable to repaint its machines during the war and this would in time detract from their general appearance.

Although the company's problems in connection with machines on railway stations had been very considerable during the year, he was very pleased to say that they had all been solved to their mutual satisfaction. This was due in a very large degree to the friendly and satisfactory relationship existing between the railway companies and the company and to the particularly helpful attitude of their officers in all their dealings with the British Automatic Co. Ltd.

The Chairman concluded with a tribute to the management and staff. Mr. F. L. Timmins, the General Manager, had been working as an Assistant Director of Mechanisation in the Ministry of Supply since August last, and Mr. W. J. Devenish, who had been with the company for some 33 years, had been appointed Acting Manager in his absence, and the Chairman congratulated him on the efficient way in which he was carrying on his duties.

The report and accounts were adopted.

Associated Electrical Industries Limited

The annual general meeting of Associated Electrical Industries Limited was held at Crown House, Aldwych, London, W.C.2, on April 2. Sir Felix J. C. Pole, Chairman of the company, presided.

The Secretary (Mr. R. H. Haviland) having read the notice convening the meeting and the auditors' report,

The Chairman said that after providing for taxation, the profit for the year was £686,527, compared with £681,536 for the previous year, an increase of £4,991. After charging £233,707 against £263,296 for depreciation of plant, etc., the net profit was £452,820, an increase of £34,580. This provision for depreciation was in respect of the Metropolitan-Vickers Electrical Co. Ltd. only. Depreciation provided by all the companies in the associated group totalled £533,118. To the net profit of £452,820 had to be added £285,314, the balance brought forward from the previous year, making a total amount to be dealt with of £738,134. The directors proposed to establish a new reserve, namely, a reserve for contingencies. No one could foretell what expenditure it might be necessary to incur after the war, and the directors felt that they were exercising prudence in the interest of the stockholders in allocating £150,000 to meet any unforeseen demands on their resources. After providing for dividends on preference stock, £52,306, there remained £535,828, and the directors recommended a dividend on the ordinary stock of 10 per cent. per annum, less tax, leaving a balance to be carried forward of £289,736 as compared with £285,314 brought in from the previous year.

The Council of the Institute of Chartered Accountants had been expressing its views on certain aspects of the accounts of companies. This was all to the good because there were differences of practice which might well be assimilated. For example, it was that company's practice to make complete provision for taxation on the profits of the year covered by the report and the directors showed the amount to be paid in dividends as a net figure after deduction of tax. That was not universal practice. If the preference and ordinary dividend figures had been shown gross, including tax, then the profit for the year would have been recorded as £984,925 instead of £686,527.

From what he had said in previous years the stockholders knew his views as to dividend policy, and they were shared by the whole of the board. This was the seventh consecutive year in which the company had paid a 10 per cent. dividend and a dividend equalisation fund of half a million pounds had been built up, which fund there would be no hesitation in drawing on for the benefit of stockholders should the future have in store any adverse trading or other conditions.

Creditors, loans, accrued charges, and reserves for contingencies, £7,471,977 (and amounts owing to subsidiary companies £365,051) totalled £7,837,028, an increase of £554,746. On the assets side of the balance sheet, shareholdings and debentures in subsidiary companies and investments in other than British Government securities totalled £4,149,803, an increase of £275,141. The stocks and materials on hand, debtors, etc., amounting to £10,920,341, showed an increase of £496,633. Cash and British Government securities, including tax reserve certificates at £795,211, showed an increase of £383,945. As usual, a consolidated balance sheet showing the position of the associated group of companies as a single unit was published. He directed attention to the strength of the group as demonstrated by the reserves and profit and loss accounts, which items had increased by £471,586 to £4,427,754, a total which represented 90 per cent. of the ordinary capital.

In present circumstances it was not permissible to give particulars of the company's activities, but he might say that all previous records had been beaten by last year's orders received and the output of the works. The company had

responded wholeheartedly to the demands of the Government for increased production. Indeed, it had been actively engaged for a good many years in assisting the country's defence programme and today the works were entirely occupied on work for the furtherance of the war effort. Much of this represented normal electrical products and in that connection the stockholders would be interested to know that the company received substantial orders from the Ministry of Supply for electrical plant for our Russian allies. The knowledge and skill of the company's engineers had been in constant demand in devising or improving specialised articles and the board had been gratified to receive many commendations from Government departments.

On the manufacturing side great skill had been displayed in expanding and improving factory accommodation, and in securing the highest degree of workshop efficiency and the most speedy flow of output. This could not have been achieved without the goodwill and effort of the workpeople and staff. Some day he hoped they would be able to publish a history of the company's wartime activities and then the shareholders would have evidence of the outstanding contribution of the associated group of companies to the national effort.

The company had always striven to maintain a sympathetic understanding with its employees. Machinery that had existed at Trafford Park for more than 25 years for discussion of problems and to enable close contact to be maintained between the management and all classes of employees had been thoroughly tested under war conditions. Notwithstanding the difficulties incidental to vast augmentation of personnel by dilution of skilled labour and the employment of women, the works and staff committees had continued to function most satisfactorily and no labour disputes worth mentioning had arisen. These committees had not only played a useful part in securing harmonious relations with employees but they and the efficiency meetings, of which he had spoken last year, had given great help in assisting the management to increase production. They received each year many hundreds of suggestions from individual employees and he was glad to say that the suggestions scheme played a very important part in the company's affairs. In other directions various forms of welfare, benevolent and thrift work had been encouraged. The Long Service Association continued to flourish. The contributions to the National Savings Scheme continued to grow and Metropolitan-Vickers employees alone had invested nearly £200,000 in War Savings Certificates, etc. The number of employees in the fighting and other services had increased as also had the allowances to the dependants of employees who were serving with the Forces.

The stockholders would be aware of the great value which was attached to the research and engineering departments. The company could not hope to maintain the foremost position which it now occupied in the electrical engineering field without expending adequately to maintain and indeed considerably to extend research, development, and engineering generally—and it intended to continue this policy. The research facilities and personnel were of a high order. One member of the Research Department, Dr. Dannat, had received well-merited recognition in the New Year Honours. The Research staff and the extremely able electrical and mechanical engineers had many outstanding achievements to their credit, and in recent times they had concentrated on developments of urgent national importance in association with the technical departments of the Government and the fighting forces.

This was the fourth annual meeting in wartime and obviously peace conditions must be getting nearer; therefore, one was tempted to discuss post-war problems. The important thing at the moment was to win the war and he accepted wholeheartedly the Prime Minister's advice that they should "concentrate even more zealously upon the war effort and not take our eye off the ball for a moment." He might say, however, that—to quote another Minister, Major Lloyd George—"I believe that the country's future prosperity is intimately tied up with the electrical industry and that that industry is bound to play an extremely large part in post-war reconstruction." When the war was over, he felt satisfied that, no matter whether there was to be (as he hoped) a planned organisation of industry or whether (as he hoped they would not) they reverted to highly wasteful competitive conditions nationally and internationally, the Associated Electrical Industries group of companies would not be found wanting. The war had shown that the manufacturing industry could produce to meet maximum demands. The great post-war problems related to distribution and consumption. If they could, by national and/or international action, find ways and means of preventing that kind of world suffering, so aptly described as production wealth and consumption poverty, all would be well. This problem was being discussed on both sides of the Atlantic and, in his opinion, all suggested solutions should be most sympathetically studied, even though it might be difficult for those who had been brought up in the old school of political economy to appreciate how they could be made to function.

The report and accounts were adopted.

Government Control of Railways

Estimates of the pooled revenue receipts and expenses and resultant net revenue of the controlled undertakings for the year ended December 31, 1942, were given in a White Paper (Cmd. 6436) issued on April 2. The terms of the White Paper were as follow :—

1. The terms of the Railway Control Agreement are set out in full in an Order (S.R. & O. 1941, No. 2074) made by the Minister of War Transport on December 19, 1941, under the Railways Agreement (Powers) Act, 1940. In Command Paper 6349, presented to Parliament by the Ministry of War Transport in April, 1942, estimates were given of the pooled receipts and expenses and the resultant net revenue of the controlled undertakings for year ended December 31, 1941.

2. Estimates for the year ended December 31, 1942, show that the pooled receipts and expenses for that year were approximately as follow :—

Receipts and expenditure of the controlled railway companies and joint lines in respect of railway working and of the London Passenger Transport Board in respect of railway working and road services :	£
Receipts : Passenger	163,544,000
Freight	176,658,000
Miscellaneous	3,285,000
Total	£343,487,000
Expenditure	251,715,000
Net receipts	91,772,000
Other receipts and expenditure included in the pool (net)	Dr. 2,646,000
Net revenue of the pool	£89,126,000

The figures are subject to adjustment when receipts and expenditure have been finally ascertained.

3. The item "Other receipts and expenditure included in the pool (net)" includes the net revenue from ancillary businesses (*e.g.*, steamboats, docks, hotels, collection and delivery of parcels and goods) and rents, interest, and other miscellaneous items.

4. The fixed annual sums payable by His Majesty's Government to the controlled undertakings amount to £43,469,000.

5. Under the provisions of the control agreement maintenance charges (including renewals) are standardised on the basis of an average pre-war charge adjusted for variations in assets in service and in price levels.

If the actual expenditure of any of the controlled undertakings in any year of control is less than the standardised charge, the difference, representing arrears of maintenance, is invested in Government securities through a trust fund administered by trustees appointed by His Majesty's Government and the controlled undertaking. There are five trust funds (into which are also paid certain sums received in respect of lost assets) and such funds accumulate at interest and meet the cost of any arrears of maintenance overtaken during control. At the end of control amounts equal to the net arrears of maintenance of the controlled undertaking concerned (calculated with reference to the trend of variations in prices), together with the sums in respect of lost assets, will be paid to the relevant undertaking. The balance of each fund, subject to meeting any approved claims arising out of control, will be passed through the pool account for the final accounting of control.

The amounts in the trust funds at December 31, 1942, were approximately as follow :—

Trust fund	Arrears of maintenance, etc.	Interest (net)	Total balance of fund
	£	£	£
Southern Railway ...	9,631,000	99,000	9,730,000
Gt. Western Railway	8,526,000	102,000	8,628,000
London Midland & Scottish Railway ...	17,311,000	239,000	17,550,000
London & North Eastern Railway ...	18,514,000	233,000	18,747,000
London Passenger Transport Board ...	12,723,000	157,000	12,880,000
	£66,705,000	830,000	67,535,000

CONTROL OF IRON & STEEL ORDER.—The Minister of Supply has issued the Control of Iron & Steel (No. 30) (Scrap) Order, 1943, effective from March 29, which supersedes all previous scrap iron and steel Orders. It has been issued principally for the purpose of combining in one document the provisions of the Nos. 14, 21, 24, 25, 27, and 29 Orders, although the opportunity has been taken of effecting a number of alterations in wording for the sake of consistency in both the body of the Order and the specifications set out in the price schedules. Copies of the Order, S.R. & O. No. 435, price 5d., can be obtained from H.M. Stationery Office, York House, Kingsway, W.C.2, or through any bookseller.

Staff and Labour Matters

Dock Workers

Under a recent agreement the attendance money paid to men in National Dock Labour Corporation ports is to be increased from 5s. to 6s. a turn, making a total of 66s. for a full week of 11 turns. The agreement provides also that men on weekly engagements employed by registered port transport employers in handling cargo, or duties allied with those of cargo handlers, shall be paid £4 2s. 6d. in the greater ports and £3 17s. in the smaller ports. Workers on temporary transfer, other than daily transfer, from their home ports are guaranteed that their total earnings, including all overtime and attendance money, shall amount to not less than a full week's pay on the basis of a 44-hr. week at the national time-rate minimum pay for every full pay week they remain available for work in a different port. Broken weeks are to be dealt with on a *pro rata* basis.

Engineering Wages

The National Arbitration Tribunal has issued its award on the following claims made by the trade unions represented by the National Engineering Joint Trades Movement :—

(1) General application for an all round increase of 11s. a week.

(2) An increase equivalent to 33⅓ per cent. of base rates, to all plain-time workers.

(3) Restoration of pre-June, 1931, conditions.

The tribunal awards :—

(1) That subject to the provisions of sub-paragraph (3) of this paragraph, rates of remuneration be varied as follows :—

(*a*) *Adult male time-workers*

(i) That the existing district basic rates be increased by 20s. a week of 47 hr. by the transference thereto of that sum from the existing national bonus of 35s. 6d. a week.

(ii) That the existing national bonus of 35s. 6d. a week be adjusted by the transference therefrom of 20s. a week to the basic rates and by the addition thereto of 6s. a week by way of an advance, making a national bonus of 21s. 6d. a week.

(*b*) *Adult male workers on payment by results*

(i) That the existing district basic rates be increased by 20s. a week of 47 hr. by the transference thereto of that sum from the existing national bonus of 33s. 6d. a week.

(ii) That the existing national bonus of 33s. 6d. a week be adjusted by the transference of 20s. a week to the basic rates, making a national bonus of 13s. 6d. a week.

(iii) That piecework prices and " bonus or basis times " shall be such as will enable a workman of average ability to earn at least 27½ per cent. over basic time rates as provided by this award, excluding national bonus.

(2) The tribunal finds against the claim in other respects.

(3) In the application of this award to timeworkers :—(*a*) individual merit rates shall be maintained ; (*b*) to the extent to which any timeworker by reason of the receipt of lieu rates, compensatory or other bonuses, or merit rates commonly applied is at present remunerated at a rate in excess of the district inclusive rate (that is, basic rate plus national bonus) applicable to him under the existing provisions, the 6s. advance in national bonus made by the award shall be *pro tanto* reduced. This provision shall not apply to workers (such, for example, as skilled workers employed as maintenance men, inspectors, setters-up or markers-off) who are in receipt of additions to the minimum rate under joint national or district agreements.

(4) This award shall not operate to reduce the existing rates of workers who are in receipt of rates higher than those provided by the award.

The award has effect as from the beginning of the first full pay period following March 20, 1943.

Parliamentary Notes

Railway Freight Rebates Bill

In the House of Lords on March 30 Lord Templemore on behalf of Lord Leathers (Minister of War Transport) presented the Railway Freight Rebates Bill, and it was formally read a first time. (*See editorial article, page* 376.)

Questions in Parliament

Railway Staffs War Bonus

Commander R. T. Bower (Cleveland—C.) on March 31 asked the Parliamentary Secretary to the Ministry of War Transport if he would state the reasons for rejecting the claim for an increase in pay by railway staff earning between £500 and £1,000 a year ; how many staff were affected ; and whether the companies were willing to advance these salaries.

Mr. P. J. Noel-Baker : The decision not to pay war bonus to railway staff whose salaries are between £500 and £1,000 a year was taken in pursuance of the Government's policy on stabilisation and in accordance with decisions made in comparable cases by the National Arbitration Tribunal and the Industrial Court. The number of persons affected is 1,768.

Commander Bower : The Parliamentary Secretary has not answered the last part of my question.

Mr. Noel-Baker : Commander Bower will understand that the views of the railways are conveyed to the Ministry by the Railway Executive Committee, which is the agent of the Government, and its advice has to be regarded as confidential.

Commander Bower : Why is it that this small number of salaried people who bear a vast burden of responsibility should apparently be the only railway employees who are not allowed to have an advance ?

Mr. Noel-Baker : Because the decision was made by the Minister of War Transport after consultation with the Chancellor of the Exchequer, and together they examined very carefully every aspect of the question. I think Commander Bower ought to take it that the decision is final.

Mr. R. De La Bere (Evesham—C.) : But where is the justice of it ?

Mr. G. Griffiths (Hemsworth—Lab.) : In the House of Commons, you have had a rise in wage.

Availability of Return Tickets

Mr. R. W. Sorensen (West Leyton—Lab.) on March 31 asked the Parliamentary Secretary to the Ministry of War Transport whether he would arrange for existing return railway tickets, now available for one month, to be extended to three months, in view of the fact that the existing restriction to one month did not diminish travelling and failure to use the return half within one month involved an inequitable surcharge to the passenger.

Mr. P. J. Noel-Baker : No, Sir. I see no inequity in the imposition of a maximum period of validity in return for a reduced charge, nor do I think that travellers are prejudiced by the limitation to a month.

Mr. R. W. Sorensen : Surely the Parliamentary Secretary recognises that sometimes travellers have to remain beyond one month, that therefore there is no diminution of travel, and it means that they are penalised and have to make certain additional payments ?

Mr. Noel-Baker : The great concession of a fare and a third rate for monthly travel was put on to induce people to travel. If we extended it for longer periods, we would soon reach the point at which everybody would be travelling at reduced rates.

Mr. R. W. Sorensen : Is it not a fact that no one travels unless he has to do so ?

There were cries of " No."

Mr. R. W. Sorensen : If it is a case of long-distance travel, it is usually necessary, and will the Parliamentary Secretary reconsider the matter ?

Mr. Noel-Baker : There is no occasion for adding additional inducements to people to go away and stay away up to three months.

Notices at Underground Stations

Captain Alan Graham (Wirral—C.) on March 31 asked the Parliamentary Secretary to the Ministry of War Transport whether, in order to diminish overcrowding and confusion amongst passengers in the tubes of the various London underground railways, he would largely increase the number of " Keep-to-the-Left " notices ; and whether he would consider putting up similar notices in French and Polish.

Mr. P. J. Noel-Baker : I am informed that the number of directional notices in Tube stations has been considerably increased since the beginning of the war. Where possible, the opposing streams of traffic are segregated ; where this cannot be done, I am asking the authorities to consider whether it would be of advantage to erect more notices. I am afraid that the addition of notices in French and Polish would tend to reduce the value of the existing notices.

Captain Graham : Has it occurred to the Parliamentary Secretary that it is precisely those foreign linguists who in their own countries invariably keep to the right and that therefore there is rather a special need for this ?

Mr. Noel-Baker : I think that most of our gallant Allies have now learnt enough English to understand the meaning of that notice.

Season Tickets for Welsh Bus Services

Sir Charles Edwards (Bedwelty—Lab.) on March 31 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that the Western Welsh Omnibus Co. Ltd. and other companies in Monmouthshire and South Wales had stopped issuing three or six months' tickets and were issuing only monthly ones ; whether this was a decision arrived at by the companies themselves or a national order issued by the National Transport Board ; and whether, seeing that this was an increased cost to persons using these services and also an increase of office work, he would take steps to see that the order was cancelled.

Mr. P. J. Noel-Baker in a written answer stated : At the instance of the Regional Transport Commissioner for Wales, the issue of three, six, and twelve monthly season tickets was suspended from January 1, 1943, on the services of certain bus companies in Monmouthshire and South Wales. As has already been announced in the Press, the commissioner has found it possible to allow the restoration of these tickets as from April 5, 1943, subject to a right of withdrawal at 7 days' notice if circumstances should render this necessary.

XUM

Notes and News

La Guaira & Caracas Railway Co. Ltd.—Payment is announced of 2½ per cent. on the 5 per cent. debenture stock, being interest due September 1, 1939.

Hauliers Mutual Federation.—A company entitled the Hauliers Mutual Federation Limited was incorporated on March 18, with an unlimited number of members each liable for £1 in the event of winding-up. The company has been formed "to provide an organisation for professional hauliers, to protect the interests of members, etc."

Canadian Pacific Bond Repayment.—It is reported from Canada that the directors of the Canadian Pacific Railway Company are proposing to call $20,000,000 4½ per cent. 20-year collateral trust gold bonds for redemption in the autumn. These bonds are held mainly in Canada and the United States. They were issued in 1926, and should be redeemable in the ordinary course on September 1, 1946.

Road Accidents in February, 1943.—The return issued by the Minister of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britian during the month of February last shows 511 deaths (compared with 510 in February, 1942), 2,479 seriously injured compared with 2,633 in February, 1942), and 6,617 slightly injured (compared with 7,745 in February, 1942).

New South Wales Railways.—Gross receipts for the quarter ended September 30, 1942, were £8,715,566, an increase of £2,413,051 on the corresponding period of 1941. Expenditure was £1,696,800 higher at £5,969,675, and the operating ratio rose from 67·80 per cent. to 68·49 per cent. Goods traffic was 4,860,334 tons (against 4,186,628 tons) and merchandise earnings improved from £3,306,845 to £4,817,656. Passengers numbered 56,917,303 (52,463,069), and coaching earnings were £3,520,127, against £2,670,869. Miles open were 6,126¾ (6,127).

L.N.E.R. Extension of Time Application.—The London & North Eastern Railway Company is applying to the Minister of War Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, extending by three years the time limited by the L.N.E.R. (Extension of Time) Order, 1940 (S.R. & O. 1940, No. 2133) for exercise of the powers for completion of: (1) Railway No. 3 in Ipswich authorised by the L.N.E.R. (Works) Act, 1930 (Section 5); and (2) Deviation Railways Nos. 1 and 2 in Wood Green authorised by the Great Northern Railway Act, 1914 (Section 5).

The Institution of Locomotive Engineers.—The annual general meeting of the institution was held at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, on March 24, Mr. O. V. S. Bulleid, President of the Institution was in the chair. The annual report of the council was presented. The balance sheet shows that investments at cost at December 31, 1942, amounted to £5,359, compared with £3,833 at the end of the previous year. There has been some change in the investments due to the Government calling up the holding of 3 per cent. Natal inscribed stock and the maturing of savings certificates. The sum derived from these operations, together with the deposit in the Post Office Savings Bank, has been invested in £1,000 of 3 per cent. National Defence Bonds, £900 of 3 per cent. Savings Bonds, and £500 of 2½ per cent. National War Bonds. London office expenses were reduced from £2,734 to £2,464. The income and expenditure account for 1942 shows an excess of income over expenditure of £796, which compares with £302 for the previous year.

Wagon Finance Corporation Limited.—After providing for interest on debentures and loans, and brokerage, and including the balance of £19,596 brought forward, the profit for the year 1942 was £26,026. The dividend for the year is 10 per cent. (2s. a share), and £19,776 is carried forward.

North Devon & Cornwall Junction Light Railway Company.—The Southern Railway worked this line during 1942 under the agreement of April 7, 1922, and the net revenue for 1942 is £6,614 (same). After payment of interest on the £130,000 of 5 per cent. debenture stock and an adjustment in respect of income tax, the amount to be carried forward is £973 (£916).

Belgian Railway Loan.—The Belgian National Railways Company is issuing a 4 per cent. loan to the amount of a thousand million Belgian francs, says the Official German News Agency from Brussels. The issue price is fixed at fr. 975 for a 1,000-franc share. The loan is redeemable within 40 years, namely, at par in 10 years, at fr. 1,010 in 10-20 years, at fr. 1,020 in 20-30 years, and at fr. 1,030 in 30-40 years.

"The Steel Rail."—At a meeting of the London Section of the Permanent Way Institution on April 14, at 7 p.m., at the "Albert Stanley" Institute, Hammersmith Broadway, S.W., a lecture will be given by Mr. Cecil J. Allen, Associate Fellow (L.N.E.R.), on "The Steel Rail, Past, Present and Future." Afterwards, a film loaned by the United Steel Rail Company on "The Manufacture of Steel Rails" will be shown.

Canadian Pacific Railway.—Gross earnings for February, 1943, were $20,334,000, an increase of $2,096,000 over February, 1942. Expenses advanced by $2,291,000 to $17,515,000, so that the net earnings of $2,819,000 were $195,000 lower. Aggregate gross earnings for the first two months of 1943 amounted to $39,262,000, an increase of $2,364,000 over the corresponding period of 1942, but the aggregate net earnings of $5,060,000 were $1,138,000 lower.

Canadian National Railways.—Gross earnings during February, 1943, were $30,329,000, an increase of $5,379,000 over February, 1942, and operating expenses were $3,900,830 higher at $25,206,390, leaving net earnings $1,478,170 higher at $5,122,610. Aggregate gross earnings for the first two months of 1943 were $59,607,000, an increase of $8,690,000 in comparison with the first two months of 1942, and the net earnings of $9,595,324 were $793,772 higher.

Dorman, Long & Co. Ltd.—In the course of his statement circulated with the report and accounts for the year to September 30, 1942, the Rt. Hon. the Viscount Greenwood, Chairman of Dorman, Long & Co. Ltd., said that premiums payable under the provisions of the War Damage Act, 1941, had been reduced in respect of the year to September 30, 1942. This reduction had been general to all trades and industries. In view of experience available, and to safeguard prospects of future employment, the necessity of more equitable treatment of the iron and steel industry could not be pressed too strongly on the Government. Additions to capital expenditure amounted to £28,839, and realisations aggregated £10,128. The provision for depreciation had been maintained at £275,000, which approximately equalled the wear and tear allowance for taxation purposes. So far as had been possible in the circumstances, the board had continued to make improvements to plant and equipment and to maintain the whole of it in a proper state of repair. He had considered it advisable to increase the provision for renewals, relinings, and repairs to cover expenditure which had been deferred by reason of wartime conditions.

Southern Railway Assessment.—In a circular letter to the rating authorities and county valuation committees concerned, the Railway Assessment Authority gives particulars relating to the agreed cumulo valuation for rating of £1,339,806 in the case of the Southern Railway for the third quinquennial period from April,

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices Apr. 2, 1943	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	58	39	58	—
5% Con. Pref. ...	115½	105½	119	
5% Red. Pref. (1950)	109½	103½	108	
5% Rt. Charge ...	133⅜	123⅜	135½	
5% Cons. Guar. ...	130⅜	121½	134	
4% Deb.	117	105	117	—
4½% Deb.	118	108	116½	
4½% Deb.	125	113	123¾	
5% Deb.	137	127	136	
2½ Deb.	77	70	75	
L.M.S.R.				
Ord.	28½	16⅝	29½	—
4% Pref. (1923) ...	63½	50½	61½	—
4% Pref.	76½	67½	78	—
5% Red. Pref. (1955)	103½	94⅛	104½	
4% Guar.	104½	9⅞	104½	+ ½
4% Deb.	10b⅛	101⅛	107½	
5% Red. Deb. (1952)	111	107½	110½	
L.N.E.R.				
5% Pref. Ord. ...	9⅛	2⅞	8⅛	
Def. Ord. ...	5	1⅛	4⅛	+ ⅛
4% First. Pref. ...	62	49½	60	— ⅛
4% Second Pref. ...	32½	18⅛	31⅜	+ ⅛
5% Red. Pref. (1955)	95⅛	79	95½	
4% First Guar. ...	9⅛	88	100	
4% Second Guar. ...	90	78	91½	+ ½
3% Deb.	85	76	84½	
4% Deb.	106½	100½	107	—
5% Red. Deb. (1947)	10b	103	104½§	
4½% Sinking Fund Red. Deb.	106	102½	106½	
SOUTHERN				
Pref. Ord.	77	61½	73	—
Def. Ord.	23½	14⅜	22½	— ½
5% Pref.	114½	104	117	
5% Red. Pref. (1964)	110⅜	105½	112½	+ 1
5% Guar. Pref. ...	131	121½	133½	—
5% Red. Guar. Pref. (1957)	115½	109½	114½	—
4% Deb.	116	104½	116	—
5% Deb.	134	125½	135	—
4% Red. Deb. (1962-67)	110⅜	10b	110½	—
4% Red. Deb. (1970-80)	111	106½	110½	—
FORTH BRIDGE				
4% Deb.	109⅞	108	108	—
4% Guar.	105½	100	104½	—
L.P.T.B.				
4½% "A"	122½	111	122½	—
5% "A"	131½	122	130½	—
3% Guar. (1967-72)	95⅜	97⅜	100	—
5% "B"	121	111½	120½	—
"C"	56½	38	57½	+ 2
MERSEY				
Ord.	27½	20½	29½	—
3% Perp. Pref. ...	61⅛	56½	61	—
4% Perp. Deb. ...	102⅜	99½	104	—
3% Perp. Deb. ...	80½	76	79	—
IRELAND				
BELFAST & C.D.				
Ord.	9	4	9	—
G. NORTHERN				
Ord.	29⅜	12½	17⅛	—
G. SOUTHERN				
Ord.	25	10	9	—
Pref.	29	12⅜	14⅜	—
Guar.	53	35⅜	28½	—
Deb.	71½	55½	54½	— 1½

§ ex-dividend

OFFICIAL NOTICES

ASSISTANT MECHANICAL ENGINEER required for the Tanganyika Government Railway for the duration of the emergency or one tour of 30 to 36 months residential service whichever is the lesser period. Salary £720 a year. Free quarters and passages. Candidates must hold an engineering Degree or equivalent qualification; have served a pupilage or full apprenticeship with a British railway, passing through all sections of the locomotive repair and building works including Drawing Office and Running sheds; and have had at least two years' subsequent experience.

Applicants should write to Ministry of Labour and National Service, Central (Technical and Scientific) Register, Alexander House, Kingsway, London, W.C.2, giving full name and address, date of birth, details of educational attainments, industrial training, and names and addresses of employers and posts held in chronological order (with dates of starting and ending each employment), and salary in present post. The reference number C.1334 must be quoted.

OVERSEAS EMPLOYMENT.—Technical Assistant to the Chief Engineer required by the Sierra Leone Railway for one tour of 12 to 24 months or the duration of the war, whichever is the shorter period. Salary £475-£25-£600-£30-£840 a year. Free passages and quarters. Candidates must be competent draughtsmen with knowledge of the design of railway buildings and structures and of the layout of stations and goods yards. A knowledge of reinforced concrete design would be an advantage. Write stating age and full particulars of qualifications and experience to:—The Secretary, Overseas Manpower Committee (Ref. 763), Ministry of Labour and National Service, Sardinia Street, Kingsway, London, W.C.2.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

1941, to which reference was made in the annual report of the company. The average net receipts of the company's undertaking for the five accounting years 1935-39, as entered in the draft roll, are £5,328,436. The cumulo, entered at £1,339,806, compares with £1,150,000 in the second roll and represents an increase of approximately 16½ per cent. Of the new cumulo of £1,339,806 there has been allocated to the principal undertaking £1,294,151, to the docks £44,165, to the canals £150, and to certain subsidiary undertakings £1,340. Of the sum of £1,294,151 there has been allocated to Class A as a whole £1,087,087 and to Class B as a whole £207,064.

British Automatic Co. Ltd.—The profit for the year 1942, as shown by the profit and loss account, after charging debenture interest of £10,188 and a transfer of £10,000 to deferred maintenance of machines reserve, amounts to £41,656, and the sum of £4,041 was brought forward, making a total of £45,697. From this sum the directors have allocated £24,922 to depreciation and renewals account, leaving a balance of £20,775. A dividend of 8 per cent., less tax, is recommended, which will absorb £16,000, leaving £4,775 to be carried forward.

Associated Electrical Industries Limited.—As shown by the profit and loss account, the balance for the year 1942 (including dividends from subsidiary companies) after providing for expenses of management, bad and doubtful debts, directors' fees, and maintenance of buildings and machinery, and after providing for contingencies and taxation, was £686,527, compared with £681,536 for 1941. From this balance a sum of £233,707 (£263,296) is deducted for depreciation, leaving a balance carried to balance sheet of £452,820. Adding £285,314 brought forward makes the total profit available for distribution £738,134, for which £150,000 is appropriated to contingency reserve account, leaving £588,134. Preference dividends require £52,306. The directors recommend a dividend at the rate of 10 per cent., less tax, on the ordinary stock for the year (same), absorbing £246,092, and leaving £289,736 to be carried forward.

Negligence, But Not Wilful Misconduct.—The Court of Appeal on March 28 dismissed the appeal by Hartstoke Fruiterers Limited against a judgment by Mr. Justice Hallett in favour of the London Midland & Scottish Railway Company. The action related to two consignments of bananas carried at owners' risk, subject to the Standard Terms & Conditions settled by the Railway Rates Tribunal. Condition 3 relieved the company of liability except on proof of wilful misconduct, and Condition 9 required the company to give notice of arrival of a consignment at the station of destination. Delay in giving the necessary notice to the consignee caused deterioration of the bananas, for which damages were claimed. Mr. Justice Hallett had decided that a breach of Condition 9 had been committed, but that the plaintiffs had failed to prove wilful misconduct, and the defendant company was consequently protected by Condition 3. Before the Court of Appeal the railway company admitted a breach of Condition 9, but claimed to be protected by Condition 3, and this claim was upheld.

Hadfields Limited.—Trading profit for the year 1942 was £254,481, and the net profit, after deducting debenture interest and other items, was £202,264. Adding £659,022 balance brought forward makes a total of £861,286. The directors recommend a final dividend on the ordinary stock at the rate of 1s. 6d. a unit of 10s. (equivalent to 15 per cent.), less tax, making 22½ per cent. for the year (same), carrying forward £733,237. All departments have been fully employed, and production has again beaten previous records.

Great Southern Railways Reorganisation Plans.—It was announced recently in the Dail by the Ministry for Industry & Commerce that proposals for the reorganisation of the Great Southern Railways Company, providing a basis for consideration, were being examined. The application for an Emergency Powers Order to increase rail rates and fares had not then been received in the Department of Supplies. The recommendations of the Transport Tribunal would be borne in mind in examination of the proposals, and any reorganisation would be the subject of legislation.

Contracts and Tenders

The following orders have been placed recently by the Egyptian State Railways:—

Caprotti Valve Gears Limited: Locomotive spares.

A. Balfour & Co., Ltd.: Augers, saws, etc.

British Oxygen Co. Ltd.: Rods.

Mulcott Belting Co. Ltd.: Belting.

Alley & MacLellan Ltd.: Valve and valve-springs for air compressor.

Consolidated Pneumatic Tool Co. Ltd.: Rivetting hammers.

Thomas Bolton & Sons, Ltd.: Copper plates.

General Electric Co. Ltd.: Tubing solid elbows, tee boxes, etc.

W. T. Henley's Telegraph Works Co., Ltd.: Connecting wire and copper wire.

The address of the Central Argentine Railway registered offices as from April 5, is 68, Bishopsgate, London, E.C.2. The telephone numbers are London Wall 5338, 5339, and 5330.

Mr. G. L. Darbyshire, Vice-President, L.M.S.R., speaking at the opening ceremony, which he performed on March 23, of the new canteen for station staff at St. Pancras. Seated at the table next to Mr. Darbyshire is Colonel H. E. Roberts, District Passenger Manager, Euston, L.M.S.R.

Railway Stock Market

The general undertone of Stock Exchange markets has remained firm, but whereas encouraging views as to the progress of the war continued to assist sentiment, the disposition to await the Budget prevented improvement in the volume of business. Although best prices shown in home railway securities during the past few days were not fully held, small gains were recorded on balance in the junior stocks. Prior charges were very firm and tended to move higher in some instances.

Indications were not lacking that the White Paper on railway receipts has had the effect of drawing widespread attention to the fact that the Government made a very profitable deal with the railways under the existing rental agreement; net revenue of the railway pool in 1942 rose to £89,126,000, or more than double the fixed rental of £43,469,000 paid to the railways. Judged by the large expansion in revenue under wartime conditions, the return on the junior stocks (higher payments than those for 1942 cannot be expected unless there is an unusually large increase in ancillary revenue) is very low, and it is particularly unfortunate that the rental will not permit of any payments on L.N.E.R. preferred and deferred stocks. Although the high wartime earnings benefit the Government and do not, of course, have any influence on the dividend outlook for the junior stocks, the latter have improved slightly in price. Despite the wider recognition of the small return being received by railway stockholders, sentiment has been assisted by the hope that the sacrifices being made by the latter will not be overlooked in any post-war negotiations regarding the railways. Apart from near-term considerations, the existing rental agreement will have to be judged by the length of time it continues in operation after the war. All points considered, there seems no reason why home railway stocks should continue to be valued at levels which show double the yields obtainable on leading industrial shares. The dividend outlook of the railways under the existing agreement is clearly defined, and dividends around current rates may very well continue until there is a final decision as to the future organisation of the railways after the war. The generous yields ruling on L.M.S.R. preference stocks, and also on L.N.E.R. preferences and Southern preferred, have attracted rather more attention in the past few days.

Compared with a week ago, Great Western ordinary has improved from **58** to **58¾** at the time of writing; the **5** per cent. preference was fractionally higher at **119½**, and the **4** per cent. debentures were again **117**. L.M.S.R. ordinary rallied from **29⅛** to **30**, the **1923** preference **61½** to **62½**, and the senior preference was higher at **78½**. There was further speculative activity in L.N.E.R. preferred and deferred which were higher on balance at **10** and **4⅝** respectively. This railway's first preference rallied to **60½**; while the second preference moved up from **31¾** to **32½** in response to the view that this is one of the few stocks offering possibilities of improvement in the dividend. L.N.E.R. first guaranteed gained a point to **100½**; the second guaranteed was fractionally higher at **91½**. Southern preferred attracted rather more attention on yield considerations, and was better at **73**; the deferred improved from 22 to **22½**. London Transport "C" rose further from **56¾** to **59** and is now within a point of the level ruling in February prior to the dividend announcement. The payment, it may be recalled, was slightly higher at 3 per cent., but on this basis the yield is small. On the other hand, it is assumed that in the case of London Transport there will be no question of any change in capital structure or similar developments after the war.

There were few movements of importance among foreign railway stocks. United of Havana debentures were **40**, while Antofagasta issues further improved. Canadian Pacific Railway issues also were better.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941 2	No. of Weeks	Aggregate Traffics to date: Totals 1942 3	Aggregate Traffics to date: Totals 1941 2	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1942	Prices: Lowest 1942	Prices: April 2, 1943	Yield (See Notes)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	28.3.43	25,880	— 1,450	13	348,720	252,590	+ 96,130	Ord. Stk.	14	7¾	12½	Nil
	Argentine North Eastern	753	27.3.43	12,504	+ 3,228	39	474,924	405,930	+ 68,994	"	6½	3	5½	Nil
	Bolivar	174	Feb., 1943	4,519	— 93	8	9,811	9,572	+ 239	6 p.c. Deb.	19¾	10	19½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	20½	9	19⅜	Nil
	Buenos Ayres & Pacific	2,907	27.3.43	118,800	+ 2[illegible],100	39	3,828,540	3,335,520	+ 493,020	Ord. Stk.	7⅛	4	6	Nil
	Buenos Ayres Great Southern	5,080	27.3.43	180,120	+ 21,660	39	6,283,583	5,676,480	+ 607,500	Ord. Stk.	12½	7⅛	10½	Nil
	Buenos Ayres Western	1,930	27.3.43	54,780	— 1,440	39	2,096,820	1,993,380	+ 103,440	"	12½	6	10½	Nil
	Central Argentine	3,700	27.3.43	135,026	+ 32,976	39	5,161,431	4,113,069	+ 1,048,362	"	9½	4¼	7	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	3¾	2½	4½	Nil
	Cent. Uruguay of M. Video	972	27.3.43	34,436	+ 2,605	39	1,055,906	952,525	+ 113,381	Ord. Stk.	8	4	6	Nil
	Costa Rica	262	Feb., 1943	17,896	— 3,118	35	114,452	180,476	— 66,024	Stk.	16⅛	11	13½	Nil
	Dorada	70	Jan., 1943	6,000	+ 3,530	4	—	—	—	1 Mt. Db.	90½	89	92⅛	6½
	Entre Rios	808	27.3.43	18,414	+ 5,772	39	690,930	595,266	+ 95,664	Ord. Stk.	33	4½	6	Nil
	Great Western of Brazil	1,030	27.3.43	16,000	+ 6,300	12	212,500	144,400	+ 68,100	Ord. Sh.	9/-	9/-	36/3	Nil
	International of Cl. Amer.	794	Jan., 1943	$655,799	— $5,506	4	$655,799	$561,305	— $5,506	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1⅛	5/3	2	Nil
	La Guaira & Caracas	22¼	Mar., 1943	9,360	+ 1,890	12	27,435	19,860	+ 7,575	5 p.c. Deb.	11⅛	5	8½	Nil
	Leopoldina	1,918	27.3.43	32,062	— 516	—	396,289	374,789	+ 21,500	Ord. Stk.	6¾	3⅛	4½	Nil
	Mexican	483	21.3.43	ps. 349,200	— ps. 1,900	11	ps. 3,694,000	ps. 3,854,600	— ps. 160,600	Ord. Stk.	1	⅛	1	Nil
	Midland Uruguay	319	Feb., 1943	17,320	+ 4,728	32	115,979	107,191	+ 8,788	—	—	—	—	—
	Nitrate	382	31.3.43	7,774	— 3,198	11	35,378	35,900	— 522	Ord. Sh.	77/	3⅛	81/3	Nil
	Paraguay Central	274	26.3.43	$4,226,000	+ $1,307,000	39	$151,315,000	$133,453,000	+ $17,862,000	Pr. Li. Stk.	53	40	52⅛	11⅛
	Peruvian Corporation	1,059	Feb., 1943	83,408	+ 14,355	32	666,842	582,024	+ 84,818	Pref.	19⅞	5⅛	16	Nil
	Salvador	100	Jan., 1942	c 177,000	+ c 39,000	30	c 609,000	c 499,172	+ c 109,828	—	—	—	—	—
	San Paulo	153½	21.3.43	36,492	+ 1,451	12	408,500	418,431	— 9,831	Ord. Stk.	59	41	61	3⅛
	Taltal	160	Feb., 1943	2,495	— 1,725	33	36,911	35,115	+ 1,796	Ord. Sh.	41/-	23/4	32/6	Nil
	United of Havana	1,346	27.3.43	71,294	+ 3,731	39	1,904,738	1,044,234	+ 860,504	Ord. Stk.	8½	2½	6	Nil
	Uruguay Northern	73	Feb., 1943	1,438	+ 429	35	11,043	9,955	+ 1,088	—	—	—	—	—
Canada	Canadian Pacific	17,039	21.3.43	1,030,400	+ 114,600	11	10,971,000	10,132,800	+ 838,200	Ord. Stk.	16¾	9 7/16	16¼	Nil
India†	Barsi Light	202	Jan., 1943	22,440	+ 10,612	42	172,958	135,863	+ 37,095	—	—	—	—	—
	Bengal & North Western	2,090	Nov., 1942	264,975	— 33,087	8	449,400	561,082	— 111,682	—	—	—	—	—
	Bengal-Nagpur	3,267	Feb., 1943	932,775	+ 84,975	46	10,031,400	9,111,000	+ 920,400	Ord. Stk.	102½	88	103⅛	3⅞
	Madras & Southern Mahratta	2,939	10.1.43	242,475	+ 33,202	28	6,658,391	5,656,721	+ 100,167	"	105¼	87	108¼	5½
	Rohilkund & Kumaon	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	—	—	—	—	—
	South Indian	2,402	10.1.43	166,555	— 778	39	4,928,736	4,148,309	+ 780,427	"	103¾	88⅛	102⅛	4 7/16
Various	Egyptian Delta	607	20.1.43	14,821	+ 2,325	43	373,655	272,885	+ 100,770	Prf. Sh.	5⅛	1⅛	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	35	10
	Midland of W. Australia	277	Jan., 1943	35,039	+ 16,136	28	225,367	141,440	+ 83,927	Inc. Deb.	95	90	95½	6½
	Nigerian	1,900	26.12.42	91,754	+ 35,534	38	2,570,963	2,112,188	+ 458,775	—	—	—	—	—
	South Africa	13,291	13.2.43	828,296	+ 11,224	46	36,019,758	34,972,298	+ 1,047,460	—	—	—	—	—
	Victoria	4,774	Nov., 1942	1,407,419	+ 227,886	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ¼

† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in sterling calculated @ 16⅛ pesos to the £

§ ex dividend